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CONTENTS

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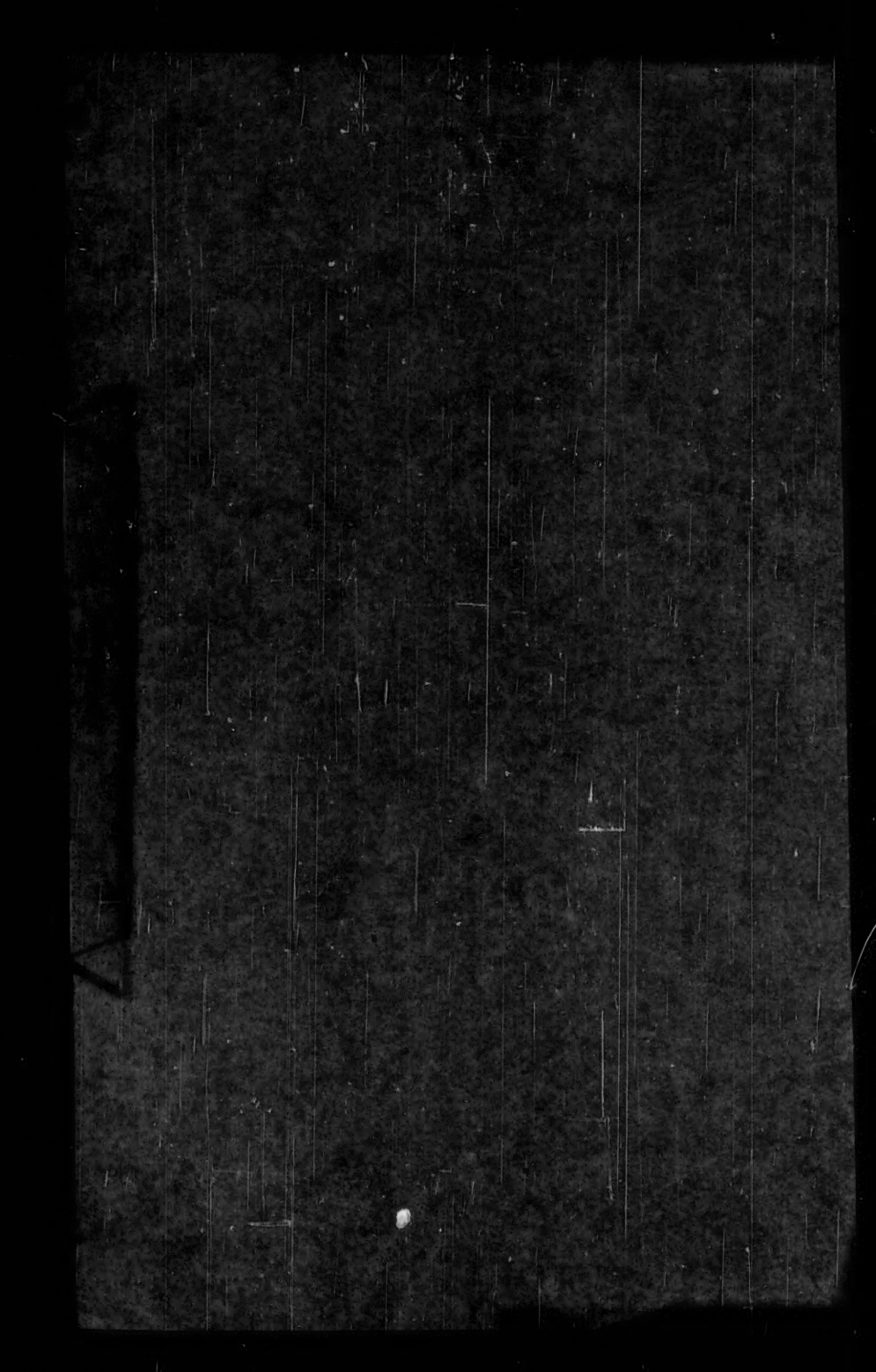

THE JOURNAL OF THE
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ABSTRACTS

(The titles which are set in bold face are intended as "scanning titles" for ease in classifying and filing. Where these are not substantially the authors' titles the exact titles are set in parentheses.)

1—FIBRES AND THEIR PRODUCTION

(B)—ANIMAL

Angora Wool and its Seasonal Variations: Technological Data. ("Die technologischen Daten der Angorawolle und ihre jahreszeitlich bedingten Änderungen.") H. W. Hohls. *Textilber.*, 1950, **31**. 1-7. The average values and seasonal variations for the hair of male and female angora rabbits were measured for (*a*) coarse hair content, (*b*) thickness, (*c*) tensile strength, (*d*) extension at break, and (*e*) heat retention capacity. The possible existence of relationships between these characteristics was investigated, and the extent to which such data might be used for classifying angora rabbits for breeding purposes. W—**1B.**

Sheep: Different Types. J. S. Starke. *Farming in South Africa*, 1950, —, 123-125, 127. An account of the distribution of different types of sheep found in South Africa. Five main types are described, and two of these are of value to the wool industry. W—**1B.**

Sheep Branding: New Fluid Developed in Australia. ("New Preparation Should Largely Overcome Branding Problem.") *The Wool Grower* (*South Africa*), 1950, No. 34, 7. The fluid, known as L.B.E. Branding Fluid, and developed by the Commonwealth Scientific and Industrial Research Organisation, Australia, will remain on sheep for a year, and can be removed by normal scouring methods. The preparation consists of lanolin, rosin, stearic acid and tallow emulsified in water with ammonium stearate, followed by the addition of suitable pigments. On application to the sheep, the ammonia volatilises, the emulsifying power of the solution is thereby lost, and so the brand can resist rain. It can be removed with hot alkaline soap solutions. The method of preparation, which is given, includes suitable preservatives and pigments. W—**1B.**

Flax Yields in Eire. *Linen Trade Circ.*, 1949, **35**, Nov. 26, 1. The October Report of the Dept. of Agric. in the Republic of Ireland gives 21-30 stones per statute acre as 1949 crop yields. The quality is fair. L—**1C.**

New Flax Pulling Machine. *Linen Trade Circ.*, 1949, **35**, Dec. 17, 17. It is reported that the Union PVBA, Desselghem, are producing a flax-pulling machine of three independent heads, each 38 cm. wide, which will pull 5 to 7 hectares a day. The price is about 70,000 Belgian francs. L—**1C.**

Flax Spinning. Part II. Machinery and Equipment. (Chap. I. Cultivation and harvesting.) A. V. Pringle. *Fibres, Fabrics & Cordage*, 1949, **16**, No. 10, 324-328. The operations of sowing, pulling, de-seeding, seed-cleaning, and drying are summarised, with particular reference to the necessary equipment: Fiddles and drill sowers; pulling machines (action, adjustment, productive capacity, and different types); de-seeding machine; winnowing machine; and drying and cleaning plant (as designed by the Linen Industry Research Association). L—**1C.**

PATENTS

Acylated Polyaminotriazole/Cellulose Ester Filaments and Films. J. W. Fisher, H. Bates and E. W. Wheatley (British Celanese Ltd.). B.P.630,528 of 12/8/1947: 14/10/1949. Filaments and films of cellulose esters are given an

affinity for acid wool dyes by incorporating in the spinning solution about 10 per cent. of an acylated polyaminotriazole (*e.g.* poly-4-amino-octamethylene-1:2:4-triazole from sebacic dihydrazide). C.

Hot Drawing and Relaxing Roller System for Thermoplastic Artificial Filaments. F. R. Davenport, T. H. Farrand, A. H. Little and Imperial Chemical Industries Ltd. B.P.630,660 of 1/10/1947: 18/10/1949. A system of rollers for the drawing and relaxing of an artificial filament or yarn (especially of the superpolyamide or poly-ester type) at an elevated temperature (*e.g.* 190° C.) comprises a set of feed rollers from which the filament or yarn passes upwards to the heating means, thence upwards to the draw rollers and from these downwards to the same heating means, without fouling the upward path, and thence to a set of rollers or other tension device that allows the filament or yarn to relax. C.

2—CONVERSION OF FIBRES INTO FINISHED YARNS

(A)—Preparatory Processes

Drawframe: Fibre Straightening Action. ("Le redressement des fibres à l'étirage.") V. Zotikov. *Rayonne*, 1950, **6**, No. 2, 67-72. A theoretical discussion is presented of the straightening of fibres by drafting. Figures for the degree of straightening of cotton fibres show that draft is more effective than carding or combing. The mechanism of the straightening of fibres in the draw-frame is examined. An expression is obtained which shows that the degree of straightening is directly proportional to the speed of drawing (if the degree of straightening after drawing is less than 100 per cent.). The effect of the "straightness" of the fibre before drawing on its behaviour during this process is considered, and curves are given to show the distribution of degree of straightness of cotton fibres after combing, after the first drawing, and just before the insertion of twist. The conclusion is drawn that the incompleteness or variability of the "straightness" of the fibres before drawing is one cause of irregularities in this process. C—**2A.**

Wool Bales: Conveyor Handling. *Text. Industries*, 1950, **114**, No. 6, 127. Wool bales arriving at an American mill are being received, weighed and stored, the various operations being facilitated by means of an overhead monorail. About sixty bales per hour may be handled by the conveyor. A "live" six-foot section of track on the monorail is link-connected to a 2,250-pound capacity scale, and compensation is made for mechanical linkage. The bales are lifted by a grappling hook attached to a one-ton hoist, which rides along the conveyor. W—**2A.**

Wool Fibres: Reclamation. N. C. Gee. *J. Textile Institute*, 1950, **41**, P192-P201. The difficulty experienced with acetate yarns in mixtures is described. These cannot be identified by visual examination or by handling. In this general review the subjects discussed include rag-collecting, rag-sorting, carbonising, shaking and washing, stripping and redyeing, and rag-pulling. Flock making and garnetting are also mentioned. The historical aspect of the industry is outlined. W—**2A.**

Woollen Blends: Spontaneous Heating: Suggested Methods of Prevention. B. R. Vickers & Sons, Ltd. *Wool Record*, 1950, **78**, 179, 181. Some of the causes and possible explanations of spontaneous heating are described. The behaviour of oils towards oxygen is of importance, and the effects of adding anti-oxidants or pro-oxidants are discussed. The protection afforded by an anti-oxidant is not permanent, hence severe oxidation may occur if yarns are stored for long periods. Some reasons why fires result from accumulations of oily fettlings are given, and suggestions for avoiding heating include the use of a semi-neutral oil having a slow oxidation rate, and immediate disposal of fettlings. W—**2A.**

Coloured Worsted Yarns: Importance of Evenly Blended Shades. *Wool Record*, 1950, **78**, 441-442. Methods of blending dyed top or slubbing vary according to requirements. Crossbreds below 58s need not be recombed, and it is customary to re-gill and blend in gill boxes prior to drawing. This gives better results than re-gilling only and blending in the drawing. Re-combing is usual for the better-class trade, and material may be (1) gilled and re-combed in individual shades followed by blending in a mixing set or in the drawing, or (2) gilled, blended and re-combed. These two methods are discussed. W—**2A.**

Continuous Woollen Blending: The Oddie-Radcliffe System. *Wool Record*, 1950, **78**, 205. A letter from the manufacturers gives further information concerning the Oddie-Radcliffe system, which was described in a recent article (*Wool Record*, 1950, **77**, 1747-8; *J. Textile Institute*, 1950, **41**, A407). It is stated that this blending system is capable of dealing with blends consisting of wool, shoddy, rayon laps, cotton, *etc.* In refuting the criticism levelled against rotary blenders, that they throw heavy material to the outside, the manufacturers explain that it is necessary to install the spreaders so that they operate on materials which have been passed through the correct type of opening machines for the classes of material used in the blend. W—**2A.**

Carding Engine: Shortcomings. A. Varga. *Canadian Text. J.*, 1950, **67**, No. 11, 59-60, 62. Results of the lecturer's investigations into the principles which govern the function of each organ in the carding engine indicate that the principal action is one of combing. The course of a lock, tuft or fibre agglomeration through the machine is considered, and the rules governing worker-cylinder (or swift), and doffer-cylinder interaction are examined. The necessity for compromise in setting the speed of the doffer is explained. In view of the combing action, and since the intensity of combing depends on its duration and the speed at which the comb (*i.e.* the cylinder wires) is drawn through the fibres, the application of variable speed gears to the workers, cylinder and doffer is necessary for controlling carding. The "Varga-breast", which, it is claimed, will eliminate most of the shortcomings of the present day carding set is described. W—**2A.**

Wool Carding: Load on Swift. J. R. Hind. *J. Textile Institute*, 1950, **41**, T192-T194. The author suggests that it would be of great assistance to workers on carding problems if the load on the swift were recorded in grains per one revolution. A table has been constructed in which the grains per one revolution of swift can be obtained quickly from the pounds per hour and the r.p.m. The lengths of the materials being carded is regarded as being one of the causes of the considerable variation observed in the table. It is suggested that the number of fibre contacts at the swift-worker line of contact has a bearing on the output of the card, and that if a correctly clothed, set and speeded worker is taken as the criterion of the load of the card, attention must also be paid to the load on the swift. W—**2A.**

Nop Yarns: Carding: Methods of Preparing Materials. *Wool Record*, 1950, **77**, 1999, 2001. The nop effect may be obtained in white or self-coloured yarns, so that the material for the ground and the nop may be the same, and the resultant effect is due entirely to the settings and adjustments made at the carding machine. Alternatively, the nops are of different colours from the ground and are specially prepared for introduction into the blend prior to, or during, carding. The nops are prepared from short, fine noils, and are made white. They are then dyed to the colours required, and in some cases are subsequently milled or felted to harden the nop. For the former type of effect, adjustments to the scribbler are necessary, and the method of setting is described. In the second case, the blending consists of placing alternate layers of ground and nops. The first mixing is done in the teaser and continued on the fearnought. Suitable settings are given. Suggestions relating to the selection of colours and qualities of wool are made. W—**2A.**

Carding: Steam Treatment to inhibit electrification on Peralta Rollers. ("Steam eliminates static on Peraltas.") *Text. Industries*, 1950, **114**, No. 6, 166. Cards are equipped with steam pipes and jets directed at the Peralta crushers in order to neutralise static electricity and to eliminate its incident troubles. The jets, which are located at the delivery end of the Peraltas, are operated by card tenders when atmospheric conditions tend to create static. The equipment is supplemented with electric neutralisers, and steel aprons replace wooden ones. A diagram is given. W—**2A.**

Woollen and Worsted Carding: Care of Card Clothing. Platt Bros. (Sales) Ltd. *Platt's Bull.*, 1950, **7**, 69-72. The maintenance of woollen and worsted card clothing is discussed. A table gives recommended tensions for mounting fillet card clothing. Special reference is made to the choice of material for the various rollers on a woollen card, the use of metal instead of wood being advocated. W—**2A.**

Wool: New Crimping Process. A. Smith and Sons Carpet Co. *Textile Mercury & Argus*, 1950, **123**, 104; *Textile Weekly*, 1950, **46**, 244, 246. A crimping machine has been designed especially for adding crimp to carpet wools such as the Argentine cross-bred type, which has a long, straight fibre with poor spinning and cover qualities, and which is usually blended with other types such as poria, which has a high degree of natural crimp. It is claimed that wool thus treated obtains increased bulk, which helps to give it increased cover and a better handle. It is suggested that the process will permit coarser grades of wool to be used for purposes where formerly only the better grades were suitable. W—**2A.**

Flax Spinning. Part II. Machinery and Equipment. (Chap. II. Retting.) A. V. Pringle. *Fibres, Fabrics & Cordage*, 1949, **16**, No. 11, 358-361. This part of the work covers dam retting, river retting, and tank retting, and states that, apart from natural drying of retted straw, continuous oven driers are most commonly used. L—**2A.**

Flax Spinning. Part II. Machinery and Equipment. (Chap. III. Scutching.) A. V. Pringle. *Fibres, Fabrics & Cordage*, 1949, **16**, No. 12, 395-398, 400. The scutching equipment of small scutch units and of processing factories is described, and the methods of setting the machines. Modern turbine scutching machines are described. L—**2A.**

Flax and Similar Fibres: Drafting and Doubling. 2. *Alphomega* (Messrs. Fairbairn, Lawson, Combe Barbour, Ltd.), 1949, No. 3, 10-16. The author discusses the effect upon regularity of drafting and doubling of flax slivers during preparing. As regards the action of the gills on the sliver during drafting, he states that the movement of the faller when it rises into and drops out of the sliver should be controlled. He also states that the regularity of drafted slivers depends on (*a*) the amount of excessively short fibres, (*b*) the amount of control exercised on these short fibres, (*c*) density of packing of the fibres in the gills, and (*d*) length of nip. L—**2A.**

(B)—Spinning and Doubling

Hamel Flyer-twister. Carl Hamel A.-G. *Textile Recorder*, 1950, **68**, June, 87. Brief details are given of the Hamel flyer-twister for the production of cotton, flax and hemp cords (for shoemaking), fishing lines and paper yarn for carpets. The flyers are gear driven at 1,600 r.p.m. and the machine is fed from a creel of the warper's type. C—**2B.**

Ring Spinning: Reduction of Breakages. ("Les Casses de Fil au Continu.") E. De Keyser. *Rayonne*, 1950, **6**, No. 2, 47-52; No. 3, 41-43. The increase of yarn output by reduction of breakages during ring spinning is discussed. Mechanical aids such as the "Pneumafil" system and the employment of variable-speed motors are mentioned, but the need for careful checking of breakage rate is emphasised as a major aid to more efficient operation. The preparation of weekly breakage data is explained. Causes of yarn breakage are discussed as follows: fibre properties, quality of the roving, state and cleanliness of the frame, humidity, the traveller, the ring, spindle speed, regularity of roving, and tension. C—**2B.**

Threlfall Ring Frame. Richard Threlfall, Ltd. *Textile Recorder*, 1950, **68**, June, 83-84. A brief illustrated description is given of a new ring spinning frame for cotton and rayon staple. The "tin roller" wheel is made of laminated fabric, gears are totally enclosed, light alloys are used extensively, but the outstanding feature is the easily accessible "Adaptacreel", which can be fitted to other makes of ring frame. C—**2B.**

Sewing Silks: Production. Clifford Brooks. *Manufacturing Clothier*, 1950, **8**, 306. A brief outline is given of the production of silk sewing thread (for buttonholes). The count system used for sewing silks is indicated. C—**2B.**

Drafting Twist in the Woollen Ring Spinning Machine. ("Über die Verzugsdrehung bei der Streichgarn Ringspinnmaschine.") W. Frotscher. *Text-Praxis*, 1950, **5**, 277-9. Several lots of a wool/rayon-staple-fibre mixture were spun on a Gessner ring spinning machine under constant conditions, the false twist change wheels only being varied. For the medium staple length material used, the optimum drafting twist was found to be about 100 per cent. of the spindle speed; the zone of optimum drafting twist was also fairly broad, and yarn spun in this zone was found to be of greater regularity than yarns spun outside it. W—**2B.**

Drafting Condenser for Worsted Sliver. *Textile World*, 1950, **100**, No. 7, 157, 159. A condenser, made of ¼-in. Lucite, can be installed between the carriers of any conventional reducer or finisher used in the Bradford system of worsted spinning to enable pin-drafted sliver to be reduced without twist. Two diagrams are included. W—**2B.**

Woollen Yarns: Character: Use of the False Twist Tube. *Wool Record*, 1950, **78**, 191, 193. The twister tube, which controls the fibres during drafting, is of importance in developing the character of the yarn produced on the woollen frame. With care, yarns up to 36 skeins (Y.S.W.) can be spun which are comparable with those from the mule. The arrangement of the four steel pegs at the top of the tube determines the nature of the yarn, *i.e.* whether this shall be a full yarn of woollen character, or a yarn of "worsted" appearance. The importance of absolute regularity and the desirability of close setting of the twister tube nip to the front roller nip are emphasised. These requirements are fulfilled by the Platt Bros. Ltd. twister tube. It is claimed that piecing-up problems have been largely eliminated in the false twist tube on the woollen ring frame of Reiter and Co., and the threading of the twister tube is virtually automatic. A pneumatic draft tube is a feature of the Gessner frame. W—**2B.**

Spinning Fur Blends on the Cotton System. *Text. Industries*, 1950, **114**, No. 5, 92-94, 190-191. Carding and spinning of fur fibre blends are discussed. Fur has none of the natural twist or crimp of wool and its scale structure is much finer, therefore it should be treated to minimise fly and reduce static interference. Tensile strength of the fur blend yarn is ascribed to the rayon content, and viscose imparts more strength than acetate. Counts as fine as 40s/1 have been produced experimentally. A 30s/1 yarn generally contains about 20 per cent. fur. Weaving does not create any unusual problems. W—**2B.**

Spinning: A Universal System. F. Cleyn. *Canadian Text. J.*, 1950, **67**, No. 13, 67-68. A general review of the Bradford, French and American systems of spinning. The author contends that the present division of the various types of spinning systems will eventually tend to disappear, and that they may possibly be superseded by a Universal system consisting of machinery capable of handling efficiently all types of fibres and converting them into yarn. W—**2B.**

Oiling and Tinting in Worsted Processing. ("Dye and Oil Control Unit Insures Improved Fugitivity. Uxbridge Method Features Even Application of Tint and Oil of Fibers at First Pin Drafter with Fewer Blending Operations.") Bachmann Uxbridge Worsted Corporation. *Amer. Wool and Cotton Rep.*, 1950, **64**, No. 30, 13-14. A simple, clean control spray method of more evenly applying both tint and oil at the first pin drafter operation to assure better fugitivity is described. It has been found that fugitivity of dyes depends not only on concentration, but upon evenness of application. A modification is being developed for the gill box. Acid type dyes are generally recommended, but the list of sighting colours given includes vat dyes, pigments and acid colours. Some typical formulæ for oils are also given. W—**2B.**

Yarn Tension in Mule Spinning. *Text. Industries*, 1950, **114**, No. 5, 167, 169. The lubrication of the bearings of the counter faller shaft is stated to be successfully achieved by tying spindle band tightly round the shaft at each side of the bearing surface. A method for reducing friction and preventing the faller shaft from bending by having the round faller stands cut square is described, and this is said to lead to better alignment of the faller stands. W—**2B.**

Flax Spinning Frame: Settings. S. A. G. Caldwell. *Text. Manuf.*, 1949, **75**, No. 900, 565-567. The optimum conditions for wet spinning of flax are discussed. These conditions include uniform maceration of the fibre binding substances, the shortest possible reach, the amount of bearing on threadplate eyes, the efficiency of spindle drives, and effective spinning frame maintenance. The shape, balance, and condition of flyers are also discussed, and a chart is provided giving the usual settings and measurements for wet spinning frames. L—**2B.**

PATENTS

Carding Engine Flats Clearer Roller. Robert Fairclough. **B.P.**630,467 of 7/8/1947: 13/10/1949. The roller is formed of two curved sheet metal plates carried by two end supports and one or more intermediate supports, each plate being arranged slightly helically from one end of the roller to the other with a

slightly spiral gap between the plates through which the brushes project. A relatively shallow groove is formed midway between the longitudinal edges of each plate, the two grooves coming opposite each other and midway between the brush spaces. The card clothing is secured to the end supports within the gaps and is tensioned within the grooves. C.

Cap-like Flyer for Spinning Machines. British Thomson-Houston Co. Ltd. and A. T. Stretton. B.P.630,635 of 6/6/1947: 18/10/1949. The claim is for a cap-like flyer that has a longitudinal groove in which the yarn lies while it is led from the nose to the base of the cap. A separate plate is secured to the flyer to prevent the yarn from flying out of the groove during rotation of the cap. C.

Pneumatic Split Yarn Trapping Device. H. C. Bechtler. B.P.630,688 of 12/9/1946: 19/10/1949 (Conv. 12/9/1945). Instead of ejecting the air into the spinning room when a pneumatic device is fitted to a spinning frame to trap split yarn, the inventor proposes to link the system by means of valves with the air-conditioning plant. C.

Wool Combing Machinery. J. Eastwood. B.P.639,942 of 12/7/1950. The plows in a Noble comb are supported so that they cannot cut grooves in the top faces of the circle or be worn out themselves. A supporting arm of rectangular cross section fits into a rectangular recess which extends into the back edge of each plow near the top; but this means the plows can move radially or laterally but cannot rise or drop on to the combing plate. A locking device holds the plows in place. W.

3—CONVERSION OF YARNS INTO FABRICS

(A)—Preparatory Processes

Adjustable Panel Warping Creel. Marsden's (Precision Tools) Ltd. *Textile Recorder*, 1950, **68**, June, 85-86. A new creel for silk and rayon warping is announced. Bobbins are carried on a double-sided frame having an inverted V-shape. The two panels of the frame are hinged at the top edge and by means of a simple screw and lever mechanism their angle of inclination to the vertical can be adjusted at will. C—**3A.**

Yarn for Non-laddering Stockings: Warping. ("Quelques Conseils Pratiques sur l'Ourdissage des Chaines pour Indémaillable.") R. Brebar. *Rayonne*, 1950, **6**, No. 2, 61-65. Some practical hints are given for the warping of yarns for the production of non-laddering stockings. These concern the handling of the yarn, inspection of materials or objects coming into contact with the yarn, yarn breakage, and atmospheric conditions. C—**3A.**

Modern Winding and Twisting Techniques. K. H. Inderfurth. *Canadian Text. J.*, 1950, **67**, No. 13, 58-61. Some factors relating to the production of satisfactory packages on the drum winder are listed, and some of the advantages to be gained by processing quality plied yarns by single end drum winding prior to twisting are discussed. Other subjects included are, the use of the high speed doubler when doubling from a cone supply, and the twisting of mono-filament nylon yarn for hosiery. The lecture is concerned with worsted yarns, spun rayons, spun nylon yarns and continuous filament nylon. W—**3A.**

(C)—Weaving

Defective Selvedges: Causes. ("Unregelmässigkeiten an Gewebeleisten.") H. Keller. *S.V.F. Fachorgan*, 1948, **3**, 97-99. The writer discusses the causes of tight, loose and wavy, curled, saw-toothed and broken selvedges and the difficulties they make for the finisher. C—**3C.**

Defective Selvedges: Causes. ("Die Leisten oder Kanten.") W. Wiechmann. *S.V.F. Fachorgan*, 1948, **3**, 178-180, 204-205. A review is given of troubles in the dyehouse with defective selvedges due to faulty design and weaving. Point-paper diagrams are used to illustrate good and bad design. C—**3C.**

Glass Filament Fabrics: Manufacture. J. D. Nordahl. *Textile Industries*, 1950, **114**, No. 5, 95-102. An illustrated account is given of the production of glass filament fabrics, including warping, looming, weaving (including splicing), pirning, cloth inspection and trimming, finishing and packing. C—**3C.**

(D)—KNITTING

Knitted Goods: Reduction of Oil Staining During Production. ("Knitted Outerwear Mill Profits from Systematic Maintenance.") *Textile Industries*, 1950, **114**, No. 5, 151. An American knitwear mill has reduced the number of "seconds" due to oil staining by knitting "run-outs" from waste yarns during the lubrication and maintenance periods. **C—3D.**

(G)—FABRICS

Warp and Weft Rib Fabrics: Design and Production. A. T. C. Robinson. *Silk and Rayon*, 1950, **24**, 788-796. Some examples of warp- and weft-way rib fabrics are described and illustrated, including various piqués, marocain faille, crêpe cotelé, and ottomans. **C—3G.**

PATENTS

Adjustable Heald Attachment Tapes. E. Y. Johnston. B.P.630,515 of 2/5/1947: 14/10/1949. The claim is for heald attachments for looms wherein the connections between the heald shafts and the jacks or other operating levers incorporate tapes that are doubled back on themselves and fitted with slides so that the length is instantly adjustable. C.

Figured Pile Fabrics: Production. C. H. Campman and C. J. M. van den Brink (Tapijtfabriek van den Brink en Campman C.V.; assignees of J. Heckel). B.P.630,554 of 3/11/1945: 17/10/1949 (Conv. 11/9/1939). Figured pile fabric is woven (*e.g.* on a double loom) by dividing the pile warp threads of each of adjacent dents into groups separated by binding and/or other warp threads, so that coloured threads taken one from each group within each of adjacent dents can be operative simultaneously. C.

Automatic Multi-spindle Pirn Winding Machine. British Celanese Ltd. B.P. 630,583 of 5/3/1947: 17/10/1949 (Conv. 7/3/1946). The machine comprises a series of spindles each of which can rotate by its base a corresponding pirn tube held between it and a guide, and a common rocker shaft that can rock the series of guides away from and towards the spindles to release a complete pirn and engage a fresh pirn tube. Details are shown in seven sheets of machine drawings. C.

Adjustable-flange Warp Beam. Boris Blaschkow. B.P.630,599 of 17/10/1947: 17/10/1949 (Conv. 22/8/1947). The beam axle has a right-hand screw thread at one end and a left-hand screw thread at the other to take the hubs of the flanges. The hubs are furnished with rib pieces that extend through longitudinal slots in the ends of the beam. After adjusting the flanges for width the parts are locked by means of nuts. C.

Sewing Machine Thread Tension Device. British United Shoe Machinery Co. Ltd. (for United Shoe Machinery Corporation, U.S.A.). B.P.630,639 of 13/6/1947: 18/10/1949. A thread tension device for a sewing machine (especially for work on shoes) comprises a traction member (A) arranged to be rotated by thread during the sewing of a seam, a brake element (B) coupled to (A), and a braking band that makes a number of turns around (B). C.

Pitch Band Loom Reeds: Construction. Arthur Helliwell. B.P.630,708 of 15/1/1947: 19/10/1949. The pitch bands at the inner edges of the reed balks are both arranged at one side of a reed dent and those at the outer edges on the opposite side. The dents are thus slightly bowed in such a way that tension on the cloth will be insufficient to bend them. C.

Rubber Contact Shuttle. Owen McGaughney. B.P.630,716 of 26/3/1947: 19/10/1949. The inventor proposes to transfer the point of contact of a shuttle with the loom picker from the shuttle tip to a rubber buffer located in a recess about $\frac{3}{4}$-in. wide and $\frac{1}{2}$-in. deep cut in the wood behind the tip. Existing shuttles may readily be fitted with the device. C.

Loom Weft Fork. F. W. Leeming and Stanley Peel. B.P.630,774 of 25/10/1947: 20/10/1949. The claim is for a weft fork in which the prongs are wrapped around grooves in a bushing and a casing that resembles a "bull-dog" clip is used to hold the assembly together. C.

Circular Terry Fabric Knitting Machine. Interwoven Stocking Co. B.P. 630,847 of 26/4/1945: 24/10/1949 (Conv. 8/8/1944). A circular knitting machine is fitted with a circular verge co-operating with needles in the

upper cylinder to form inwardly facing stitches of rib knit fabric, the verge being divided into a number of arcuate sections each co-operating with an arcuate series of needles. Pattern-controlled mechanism is used to raise the individual verge sections and instruments are also provided to co-operate with selected needles to produce terry fabric. Details are shown in seven sheets of machine drawings. C.

Straight-bar Knitting Machine Carrier Thread Severing Mechanism. George Blackburn & Sons Ltd., W. A. Cooper and Ernest Start. B.P.630,851 of 3/1/1946: 24/10/1949. A Cotton's patent or other straight-bar knitting machine is fitted with a clamp or trapper located beyond the selvedge for securing a withdrawn thread, and cutter mechanism for severing the thread upon its re-introduction. There are 21 claims, illustrated by three sheets of machine drawings. C.

4—CHEMICAL AND FINISHING PROCESSES

(B)—Boiling, Scouring, Degumming and Washing

Continuous Cotton Fabric Finishing Range. ("Kontinuierliche und kombinierte Verfahren in der Baumwollstückveredlung.") A. Alge. *S.V.F. Fachorgan*, 1948, **3**, 161-168. A report of a lecture on the possibility of continuous processing from the grey cloth to the finished and packed piece. American developments are mentioned and attention is given to the design of speed compensators—sets of rollers over which the cloth passes in festoons. C—**4B.**

Rayon/Wool Mixture Crêpe Fabrics: Processing. ("Behandlung von Kunstseide/Woll Artikeln.") *S.V.F. Fachorgan*, 1950, **5**, 29-34. Practical hints are given on the processing of crêpes under the main headings (1) the boil-off of viscose/wool crêpes, (*a*) with alkali, (*b*) without alkali; (2) the boil-off of acetate/wool crêpes, (*a*) loose, (*b*) on the star wheel; (3) chlorine treatment, and (4) dyeing. C—**4B.**

Ultrasonics in Textile Processing. *Wool Record*, 1950, **78**, 115, 117. The application of ultrasonic methods to shaking or agitation processes in the textile industry is discussed. Two types of generator are described. Some problems which have been solved include the production of free flow of sticky powders, the stirring of liquids in inaccessible places, the flowing of thixotropic pastes, and the precipitation of crystals from supersaturated solutions. Emulsification is one of the most promising fields of application of ultrasonics. When scouring greasy wool, too vigorous movement of the fibres may lead to felting, but ultrasonic vibration provides a means of inducing very rapid shaking of the fibres; the motion is too small to cause felting, but is sufficiently vigorous to remove the grease. Experiment has shown that fibres can be scoured in fifteen seconds by this method. W—**4B.**

Woollen Cloth: Comparison of Surface-active Agents as Detergents. ("Comparative Detergency of Surface-active Agents on Woolen Cloth.") K. S. LaFleur. *Amer. Dyes. Rept.*, 1950, **39**, 385-388. The detergency of 28 representative types of surface-active agents has been determined for woollen cloth soiled with a self-emulsifying mineral oil, scouring being done in an Atlas Launder-Ometer at 100° F. for 30 min. with a 10:1 liquor ratio, followed by 2 rinses. The degree of detergency was measured by the petroleum ether extract. The comparisons were made on the bases of money value and minimum concentration necessary for moderate soil removal, and included trials without a builder, with an alkaline builder and with a neutral builder. The most satisfactory combination was a polyoxyethylene thioether and an alkyl phenol polyoxyethylene condensate (0·5 per cent. concentration on the cloth weight) and sodium chloride (0·4 per cent. concentration), at *pH* 7. Limited mill trials have confirmed these findings. W—**4B.**

Wool Washing: Rapid Method for Controlling. ("Méthode rapide de contrôle du lavage des Laines.") M. Robinet. *Teintex*, 1950, **15**, 326-329. A rapid gravimetric method for the approximate determination of fatty matter in 1 g. washed wool is described. The method consists of ether extraction for 25 min. in a special apparatus. Sampling from card sliver, combed sliver or loose wool is described. The apparatus consists of glass tubes with 2 U bends. The wool (1 g.) is put into the apparatus and 100 c.c. of ether added gradually; the ether is collected on a watch glass and evaporated by means of an infra-red lamp. The results obtained have a greater dispersion and are in general lower than when the standard Soxhlet method is used, but the rapidity of the method should in many cases compensate for its slight lack of precision. W—**4B.**

(D)—MILLING

Wool: Influence of Lubrication on Felting. R. V. Peryman and J. B. Speakman. *J. Textile Institute*, 1950, **41**, T241-T242. Samples of flannel which had been extracted successively with ether and alcohol were milled by hand for 15 minutes in solutions of different *pH*, and the percentage shrinkages compared with those of patterns which had been milled but not extracted. It was found that the milling shrinkage of extracted patterns was sensibly independent of *pH* and was unusually small (3·5-5·2 per cent.), the unextracted patterns giving values from 11-30 per cent. In subsequent experiments, addition of oil to extracted patterns restored the feltability when they were milled at *pH* 2, and high shrinkage figures were obtained with small amounts (*e.g.* 0·2 per cent.) of oleic acid. It is suggested that the low shrinkage of extracted patterns is due to the restraint placed on fibre movement by the high inter-fibre friction of clean wool. W—**4D.**

(E)—DRYING AND CONDITIONING

Fielden Drimeter. John Varley. *Amer. Dyes. Rept.*, 1950, **39**, 367-368. Brief information is given on the Fielden Drimeter and the Fielden C2 automatic control. The Drimeter measures the moisture content of fabric or yarn sheet by recording the dielectric constant of the material as it passes between two plates forming an electrical capacitor. The Fielden C2 automatic control is a relay control unit, actuated by the Drimeter, for the speed regulation of sizing machines, tenters, *etc.* (see also *J. Textile Institute*, 1947, **38**, A425. C—**4E.**

Infra-red Drying Equipment: Textile Applications. ("Die Infra-rot Trocknung in der Textilveredlungsindustrie.") Hermann Haas. *S.V.F. Fachorgan*, 1949, **4**, 158-165. The writer reviews the physical principles of infra-red drying and presents a series of curves that show the relationships between time of drying and surface temperature, moisture content and rate of drying for a spun rayon fabric, the energy output of the infra-red apparatus being at three different levels. Reference is made to numerous studies on infra-red drying by Krischer. C—**4E.**

Crêpe Fabrics: Drying. ("Das Trocknen in der Ausrüstung von Kreppgeweben.") *S.V.F. Fachorgan*, 1950, **5**, 35-40). Problems in the drying of crêpe fabrics after finishing are reviewed and, in particular, the relationship between the rate of drying in a festoon dryer and the length of the folds. A graph is reproduced that shows that the rate of drying is doubled when the folds are increased from 0 (*i.e.* flat fabric) to 0·8 metre, whereas a further increase to 1·6 metres increases the rate of drying by 13.7 per cent. only. The conclusion is drawn that it is a mistaken policy to design a festoon dryer so that the folds are more than 2 metres long. C—**4E.**

Fabrics: Drying; Moisture Control. D. S. Bunch. *Amer. Dyes. Rept.*, 1950, **39**, 369-370. The use of a Fielden Drimeter, either alone or in combination with a Fielden C2 automatic control unit is discussed with respect to the drying of textile materials. The use of these instruments in sizing operations is also explained. C—**4E.**

Textiles: Drying. ("Probleme beim Trocknen von Textilien.") J. Schneider. *S.V.F. Fachorgan*, 1950, **5**, 1-13. A general discussion of textile drying is presented under the main headings (1) pre-drying (mangling, centrifuging) and (2) drying proper (drying cylinders, hot air, infra-red, *etc.*), with special reference to efficiencies and output. C—**4E.**

(F)—CARBONISING

Carbonised Wool: Continuous Crushing. Riggs and Lombard, Inc. *Text. Industries*, 1950, **114**, No. 6, 175, 177. The machine for dusting or crushing carbonised wool consists of two tandem units, each equipped with four sets of metal rolls, the bottom ones being knurled. Vibration is practically eliminated, and both units are enclosed and equipped with large capacity fans located directly beneath to ensure complete exhaustion of dust. Each unit is driven by a 20 h.p. motor. By means of a single electrical control, the forward and reverse cycles can be adjusted for the desired production speed or to synchronise with the speed of a carbonising range. A photograph is included. W—**4F.**

(G)—BLEACHING

Peroxide Bleach Liquors: Catalysed Tendering Action. ("Bleichschäden durch Oxydationsmittel.") Rudolf Ghilardi *S.V.F. Fachorgan*, 1949, **4**, 329-334. The author describes a series of experiments in which small amounts

of catalysts (Cu, Fe and basic cupric hydroxide) were added to peroxide bleach liquors and their tendering effects were assessed by the ammoniacal silver solution test for oxycellulose and the Pauly test for damaged wool. In each experiment two bleach liquors were compared; one was hydrogen peroxide alone and the other contained caustic soda and sodium silicate or pyrophosphate as "stabilising" agents. The general conclusions are (1) the temperature for peroxide bleaching should not exceed 45–50° C. for wool or 55° C. for silk; (2) the water should be as free as possible from Fe and Mn; (3) Cr/Ni or Cr/Ni/Mo steels, wood and earthenware are suitable materials for bleaching tanks. C—**4G.**

Wool: Treatment with Sodium Chlorite. ("Traitement de la laine au Chlorite de Sodium.") M. Van Overbeke and G. Mazingue. *Bull. Inst. Text. France*, 1950, No. 18, 11-24. An investigation of the value of sodium chlorite in processing wool is described. The wool did not appreciably deteriorate if the sodium chlorite treatment took place under the following conditions: *pH*, 5-9; temperature, not exceeding 50° C.; maximum concentration of technical sodium chlorite on the weight of wool, 1 per cent.; maximum wool/liquor ratio, 1/60; maximum duration of treatment, 2 hr. The process was of little use as a bleach for wool. Wool, however, received a certain degree of unshrinkability by treatment with 0·5 per cent. concentration of sodium chlorite for 2 hr. at *pH* 7-9 and at 40° C., the wool/liquor ratio being 1/50. W—**4G.**

(I)—DYEING

Package Dyeing Apparatus: Development. ("Vom Färbeapparat zur Apparatefärberei.") E. Kleiner. *S.V.F. Fachorgan*, 1947, **2**, 129-139. An illustrated account is given of the development of dyeing machines down to modern package dyeing machines of the Obermaier type. C—**4I.**

Cellulosic Rayons: Streaky Dyeing. ("Die Ursachen der Farbstreifigkeit von Kunstseide.") A. Wissler. *S.V.F. Fachorgan*, 1949, **4**, 86-92. The causes of the uneven dyeing of rayon are discussed with special reference to the work of British chemists on filament structure and the chemistry of cellulose. C—**4I.**

"Celta" Staple Fibre: Dyeing. ("Rayonne-Celta"). Ruedi Weber. *S.V.F. Fachorgan*, 1949, **4**, 155-157. The physical properties of "Celta" fibre are mentioned and a photograph of a cross-section is reproduced to show how the inflated filaments collapse before the spinning process is complete, to form flattened ribbon-like structures. Problems encountered in the level dyeing of "Celta" with Naphtol colours are discussed and practical hints are given. C—**4I.**

Cuprammonium Rayon Hanks: Dyeing. ("Das Färben von Bemberg-Kupferkunstseide in grossen Strängen auf modernen Färbemaschinen.") Domenico Tajana. *S.V.F. Fachorgan*, 1949, **4**, 300-303. The writer discusses the problem of the level dyeing of heavy hanks (300 to 500 grams) and gives illustrations of a machine for the purpose. He quotes some figures to show that in subsequent winding the dyed hanks should give an output not more than 15-20 per cent. less than the original hanks. C—**4I.**

Garments: Dyeing. ("Wissenswertes über die Kleiderfärberei.") Karl Ottenschläger. *S.V.F. Fachorgan*, 1949, **4**, 237-246. Practical advice is given on the choice of dyes and other problems encountered by the garment dyer. C—**4I.**

Indigosol Dyes: Application. ("Die Indigosole.") W. Dietrich. *S.V.F. Fachorgan*, 1947, **2**, 27-37. A useful review is given of the chemistry and application of the Indigosols, which were first invented by Bader and Sunder in 1921. C—**4I.**

Naphthol Dyes: Application on Cotton and Rayon Textiles. B. R. Celentano. *Amer. Dyes. Rept.*, 1950, **39**, 322-323. The application of naphthols on cotton and rayon and the relationship of naphthol substantivity to methods of application and equipment are discussed. It is explained how good penetration and good rubbing fastness in naphthol dyeing can be obtained by consideration of the quality of water and salt, and by proper soaping subsequent to coupling. The use of naphthols for cellulose acetate and nylon is mentioned. C—**4I.**

Naphtol Dyes: Application. ("Von der Beta-naphtol Färbung zum Cibagen-Druck.") F. Reichart. *S.V.F. Fachorgan*, 1946, **1**, 193-202, 229-233. The author reviews the chemistry and practice of Naphtol dyeing. A useful feature of the article is the comparison of procedures by various dye manufacturers and lists of names for the naphtols and bases in different countries. C—**4I.**

Nylon: Dyeing. ("Das Färben von Nylon.") *S.V.F. Fachorgan*, 1948, **3**, 139-142. The writer outlines present difficulties in the dyeing of nylon and of mixtures of nylon with viscose and acetate rayon and wool. C—**41.**

Nylon and Nylon Mixtures: Dyeing. ("Das Färben von Nylon und Nylonmischfasern.") L. Thummel. *S.V.F. Fachorgan*, 1950, **5**, 58-59. Advice is given on the dyeing of nylon, and mixtures of nylon with wool or cotton, the reserving of nylon in mixtures with wool, and the production of two-colour effects on mixtures of nylon and silk. Suitable dyes and auxiliaries of the Sandoz Co. are mentioned. It is reported that the Sandoz range of acid dyes has been placed into three groups by a test in which a piece of nylon fabric is dyed at the boil for one hour in a 4 per cent. dye liquor containing 4 per cent. of a suitable acid, and the fabric is replaced by second and third pieces after adjusting the *pH* and dyeing is continued. Dyes showing high saturation limits are exhausted on the first piece; a medium group colours the first two pieces equally; the third group colours all three pieces equally. C—**41.**

Vat-acid Continuous Dyeing Process. ("Das Küpensäurekontinueverfahren.") Joachim Müller. *S.V.F. Fachorgan*, 1947, **2**, 253-255; 1948, **3**, 193-196. Directions and recipes are given for dyeing by the "vat-acid" process. C—**41.**

Vat Dyes: Application. ("Erfahrungen beim Färben mit Küpenfarbstoffen.") Arthur Müller. *S.V.F. Fachorgan*, 1948, **3**, 253-256. Practical hints are given on the application of vat dyes by (*a*) the ordinary, (*b*) the pigment, (*c*) the temperature range, (*d*) the vat-acid, and (*e*) the padding methods. C—**41.**

Viscose Cakes: Package Dyeing. ("Das Färben von Viskose in Spinnkuchenform im Apparat.") R. Franz. *S.V.F. Fachorgan*, 1949, **4**, 49-53. The author discusses the problems involved in the level dyeing of viscose cakes and recommends over-night steeping in soda solution (2-4 gm. per l.; 100° C.; liquor to yarn ratio 10:1) before dyeing with direct dyes. C—**41.**

Cotton and Wool Dyes: Graphical Expression of Tinctorial Properties. ("Die färberischen Eigenschaften von Baumwoll- und Woll-farbstoffen in graphischer Darstellung.") W. Stocker. *S.V.F. Fachorgan*, 1950, **5**, 117-135. The author advocates the use of graphs as a means of expressing the tinctorial properties (other than fastness) of cotton and wool dyes and reproduces several pages of graphs for Solophenyl, Erioanthracene, Eriochrome and related dyes. He shows how such graphs may be used in the selection of dyes to meet a number of typical practical difficulties in dyeing. C—**41.**

Durazol Red 2B: Distribution between Wool and Cotton in One-bath Union Dyeing. C. L. Bird, C. M. Nanavati and C. B. Stevens. *J. Soc. Dyers & Col.*, 1950, **66**, 281-288. A quantitative study is reported on the absorption of Durazol Red 2B by wool only, cotton only, and equal weights of wool and cotton in the same dyebath. In each case a series of dyeings was made at different temperatures with one variable factor, *e.g.* time, percentage of Glauber's salt, or *pH*, followed by determination of dye in the residual bath and on the fibre. A series of dyeings of increasing depth was also prepared on wool and cotton, respectively. The quantity of dye on the fibre was correlated with the depth of shade expressed in Lovibond Tintometer units. C—**41.**

Dyes: Strength Measurement. E. I. Stearns. *Amer. Dyes. Rept.*, 1950, **39**, 358-366. Two methods for determining the strength of dyes, that depend on the visual comparison of dyed samples, are briefly described and compared. Means of increasing visual sensitivity so that strength change may be more easily detected are discussed. The effect of shade difference on the comparative judgment of dye strengths is considered and the Munsell colour solid is briefly explained. Other factors which present difficulties in dye strength measurements are indicated. The spectrophotometric evaluation of the strength of dyes by use of the Pineo modification (1940) of the Kubelka and Munk formula is discussed. C—**41.**

Indanthrene Dyes: Affinity for Cotton and Staple Fibre. ("Vergleichende Untersuchungen über das färberische Verhalten der Indanthrenfarbstoffe auf Baumwolle und Zellwolle.") Joachim Müller. *S.V.F. Fachorgan*, 1949, **4**, 129-141. A report is given on a systematic comparison of the affinity of Indanthrene dyes (some 33 members of the series) for cotton and staple fibre (13 makes). The criteria employed are (1) Affinity factor, *a*: the amount of dye absorbed in

45 minutes; (2) Rate of dyeing, *s*; the fraction of the maximum absorption attained after 5 minutes; (3) Levelling factor, *g*; assessed by placing a full dyeing and a half-dyeing (or a white specimen) in the dye liquor (at 50, 70 and 85° C.), and judging the equalisation between the two specimens; (4) Temperature factor, *t*; the ratio of the absorptions at 20° and 50° C. Data are tabulated and attention is drawn to dyes that behave exceptionally; for example, most dyeings are deeper on staple fibre than on cotton but this is only true for Indanthrene olive 3G and Indanthrene khaki GG when dyeing is done at abnormally high temperatures. An attempt is also made to derive "classification numbers" from the above factor; a table gives values of $k_1 = a.s./g$. and $k_2 = a.s.t./10g$. The numbers range from below 100 to above 3,000, and place the dyes in groups that agree with practical experience. C—**41.**

Vat Dyes: Effect of Copper Salts on Fastness. ("Effet des Sels de Cuivre sur la Solidité des Teintures en Colorants de Cuivres.") J.-P. Niederhauser. *Teintex*, 1950, **15**, 109-123. The effect of copper salts on the fastness, to light and weathering, of vat dyes has been investigated. Samples of twilled cotton fabric dyed with 31 vat and four "Solasol" dyes were treated with copper salts (*a*) by means of "Hystasapage", a copper sulphate/soap mixture, and (*b*) by using "Aquaperle B", a proofing agent containing a trace of a copper salt. The results of the light and weathering tests, and also of tests on the colour changes produced by the "Hystasapage" treatment alone, are tabulated. These are discussed and compared with results of other workers. A theoretical explanation of some of the observed effects is attempted. The effect of the above treatments on the strength of cotton fibres has also been investigated. In nearly all cases studied the presence of copper salts has a detrimental effect on the fastness of vat dyes to light and weathering and markedly reduces the strength of the fibres. The latter effect is independent of whether the fabric is dyed or not. C—**41.**

(J)—PRINTING

Printing Screens: Photographic Reproduction of Fine Lines. F. W. Mackenzie. *Dyer*, 1950, **103**, 675-677. The use of photography for the reproduction of fine lines in screen printing is described. Screen coating methods with gelatin are discussed. C—**4J.**

Screen Printing Apparatus. ("Mechanisierung und Automatisierung des Filmdrucks.") Karl Schmidt. *S.V.F. Fachorgan*, 1949, **4**, 261-272. An illustrated report of a lecture on the development of mechanised and automatic apparatus for screen printing. Machines by A. Görner (Plüschweberei Grefrath A.-G.), Josef Kessel (and Gerber-Wansleben A.-G.), Hickisch and Wilsch, and other continental makers are described. C—**4J.**

Screen Printing Works: Equipment. ("Einrichtung einer kleinen Filmdruckerei.") Karl Schmidt. *S.V.F. Fachorgan*, 1949, **4**, 177-184. Detailed practical advice is given on the planning and equipment of a small department for screen printing, including the steam supply, the washing and drying rooms, the tables and the screens. C—**4J.**

Vat Dyes: Chemical Constitution and Printing Performance. L. D. Barrick. *Amer. Dyes. Rept.*, 1950, **39**, 324-328. The relations between the chemical constitution of vat dyes and their printing performance are examined. Printing quality is in general promoted by a structure having symmetry, compactness, simplicity, and the presence of a single quinone system. As a rule a good vat dye for printing is suitable for all other applications, including conversion to the soluble leuco sulphate ester. Graphic formula are given for a number of vat dyes. C—**4J.**

(K)—FINISHING

"Turbofix" Polymerisation Apparatus. K. Steinegger A.-G. (Berne). *S.V.F. Fachorgan*, 1950, **5**, 88-89. A brief account (without illustrations) is given of an apparatus for effecting the polymerisation of resins in cloth (for crease proofing or permanent finishing). The fabric is carried in festoons without tension, heating is by electric elements, and electric turbines are used so that the fabric is uniformly swept by the hot air (or gases). The duration of the treatment is normally 3 minutes. Machines are built for cloth widths of 110, 160 and 200 cm. or with provision for two fabrics side by side. C—**4K.**

Synthetic Resin Catalysts: Application in Finishing. ("Die Katalysatoren in der Kunstharz Ausrüstung.") Ciba A.-G., Basle. *S.V.F. Fachorgan*, 1950, **5**, 90-91. Drawbacks to acids and ammonium salts as catalysts in the polymerisation of synthetic resins are mentioned and a new agent—"Katalysator A Ciba"—is announced which is neutral in solutions of 10-15 g. per l., and only begins to liberate acid as it is concentrated by heating on the fabric. It has only a slight effect on the fastness of dyes. C—**4K.**

Urea-formaldehyde Resin Finish: Application; Advantages of Pre-drying. ("Ist eine Vortrocknung bei der Ausrüstung mit härtbaren Kunstharzen erforderlich?") P. Jenny. *S.V.F. Fachorgan*, 1949, **4**, 186-190. A spun rayon fabric was impregnated with a urea/formaldehyde pre-condensate ("Ureol AC", 160 g. per l.) and the hardening stage was then carried out at 130° C. (*a*) for 10 minutes, without drying, (*b*) for 20 minutes, without drying, and (*c*) for 10 minutes after drying at 75° C. The subsequent loss of weight on washing the fabric showed the necessity of drying the cloth to obtain a complete "cure". The author discusses the relative advantages of using separate drying and baking chests or a dual chest with two compartments. For economic and other reasons he advocates separate machines. C—**4K.**

Washable Cotton Chintz: Finishing. ("Waschechte Chintz Ausrüstungen auf Baumwollgeweben." E. Knup and R. Aenishänslin. *S.V.F. Fachorgan*, 1948, **3**, 113-115. Brief particulars are given of a process for securing a permanent chintz finish on cotton fabrics by means of a melamine resin. C—**4K.**

Controlled Pneumatic Pressure Calender. Maag Bros. Machine Works Ltd. *Textile Recorder*, 1950, **68**, June, 84. A new Swiss calender is briefly described and illustrated. The machine has three bowls, an upper fixed steel one and two adjustable lower paper bowls. Pressure is applied pneumatically. C—**4K.**

Cotton Fabrics: Compressive Shrinking. P. V. Seydel. *Textile Industries*, 1950, **114**, No. 5, 111-118. The theory of shrinking, the effect of water on shrinkage, shrinkage factors, and shrinkage testing are briefly discussed. The Sanforized and Rigmel methods of compressive shrinking of cotton fabrics are described. The importance of wetting agents and their effects on the finish of the cloth are considered. Some tests for agents for compressive shrinking are outlined. C—**4K.**

Wool: Recent Developments in Non-Shrink Processes. P. Alexander. *J.Soc. Dyers and Col.*, 1950, **66**, 349-357. Commercially practicable anti-shrink processes function according to two mechanisms. The first consists of removing or decreasing the differential frictional effect by lowering the anti-scale coefficients or raising the with-scale coefficients and thus removing the fundamental cause of felting; this is achieved by removal of scales, by partial degradation of the surface, or by masking the scales with polymers. The second method consists of glueing together the fibres within a yarn and thus preventing fibre movement. Most resin processes function by the latter technique, and the binding occurs locally. This may be described by the term "spot-welding" of Royer. The processes described are the anhydrocarboxyglycine process, application of melamine-formaldehyde, application of urea-formaldehyde resins, vinyl polymers, silicone resins, and chemicals which remove the scale (including chlorine, chlorosulphamic acid, sulphuryl chloride and ozone). Other subjects discussed are factors affecting the rate of reaction, including agitation and the chemical charge on the fibre. W—**4K.**

Wool: Chemical Reactivity in Relation to Anti-shrink Processes. P. Alexander. *Amer. Dyes. Rept.*, 1950, **39**, No. 13, P420-P430. Some anti-shrink processes which depend on chemical reaction with wool fibres are discussed. After reviewing the morphology of the wool fibre and the chemical constitution of wool, the fundamental causes of felting, including the two distinct new theories for the differential friction effect are discussed, and it is pointed out that chemical anti-shrink treatments reduce the D.F.E., *i.e.* that the friction from tip to root and from root to tip tends to become equal. This correlation is not complete, since some reagents almost completely eliminate the D.F.E. without producing unshrinkable wool. The theory that curliness of the fibre alone can produce entanglements is also discussed. It is shown that (1) oxidation of the disulphide bond alone is not sufficient to produce unshrinkability except after severe attack, and (2) the disulphide groups in wool can be divided into two fractions varying

greatly in their activity towards oxidising agents. The chemical basis of the non-shrink processes employing a mixture of hypochlorite and permanganate is discussed in relation to these facts. The rate-determining step of oxidation from aqueous solution can be either diffusion through a film of liquid or through the fibre. Conditions where fibre diffusion is operative will lead to the most even processing under bulk conditions. W—**4K.**

Wool: Formation of Polymers. C. Fearnley and J. B. Speakman. *J. Soc. Dyers and Col.*, 1950, **66**, 374. A method for forming polymers inside wool fibres previously described (*J. Soc. Dyers and Col.*, 1949, **65**, 390; *J. Textile Institute*, 1949, A457) has been extended to give more rapid and reproducible deposition of polymethacrylamide. This has been realised by adding the solution of methacrylamide to wool impregnated with dilute ferrous ammonium sulphate before the hydrogen peroxide. W—**4K.**

Finishing of Fabrics Containing Wool and Other Fibres. C. S. Whewell. *J. Textile Institute*, 1950, **41**, P219-P230. An account is given of the conclusions drawn from a large number of finishing trials carried out on blended cloths. The subjects covered are scouring, milling, shrinkage of blended fabrics containing other non-felting fibres (acetate rayon, protein rayons and nylon), and the production of unshrinkable fabrics. W—**4K.**

Wool Cloths, etc.: Critical Processing Stages. G. L. Atkinson. *Textile Manufacturer*, 1950, **76**, 344-345. The optimum conditions for processing cloth are discussed in the light of recent knowledge concerning the structure of the wool fibre. W—**4K.**

(L)—PROOFING

Rubber "Poisons": Origin and Removal from Textiles. ("Gummigifte in Textilien.") M. Kehren. *S.V.F. Fachorgan*, 1949, **4**, 141-144, 165-170. The author discusses the chemistry of natural and synthetic rubbers and also chemical agents that promote the "perishing" of rubber on textiles, including Cu, Mn, Fe, Co, oil and fat, and acids. The sources and detection of these "poisons"—especially the traces of Cu and Mn—are reviewed and the value of Trilon B for removing Cu and Mn is emphasised. C—**4L.**

Spun Rayon Rainwear Fabric: Finishing. ("Ausrüstung von Regenschutzkleidung aus Zellwolle.") *S.V.F. Fachorgan*, 1949, **4**, 3-10, 206-210. (1) Practical advice is given on the desizing, mercerisation, dyeing and wax proofing of spun rayon fabric for rain wear. (2) A crease-resistant finish with Kaurit KF (75 per cent. paste of dimethylol-urea) is also described. C—**4L.**

Wool: Mothproofing. Wool Industries Research Association. *Wool Knowledge, Summer* 1950, 11-14. An illustrated article giving a general account of moth damage and of methods of protection. W—**4L.**

PATENTS

Patterned Bonded-pile Fabric: Production. Behr-Manning Corporation. B.P. 628,582 of 2/10/1946: 31/8/1949 (Conv. 8/10/1945). The invention relates to a method of producing a decorative pile fabric by the electrostatic deposition of cut fibre flock on a hardenable adhesive on a backing cloth and causing the fibre to take up various angles of inclination, according to a pre-arranged pattern, before the adhesive is set. The tipping of the fibres is done by means of air blasts. The blast may be used to expose the adhesive along the lines of a pattern and other fibres may then be applied to fill in the gaps. There are 18 claims covering various modifications and suitable apparatus. C.

Amide Aldehyde Bisulphite Compound Wetting Agents. Ciba Ltd. B.P. 630,492 of 5/7/1946: 14/10/1949 (Conv. 16/7/1945). Wetting agents are obtained by causing a fatty acid amide (1 mol.; at least 8C atoms) to react at a raised temperature with at least 1 mol. of an inorganic bisulphite and 1 mol. of a sulphonated aldehyde (*e.g.* Na benzaldehyde-*o*-sulphonate), or with at least 2 mols. of a bisulphite and 1 mol. of an ethylenic aldehyde (*e.g.* crotonaldehyde or cinnamaldehyde). The reaction may be carried out in an inert solvent (*e.g.* formylmorpholine or diethyleneglycol) and a small proportion of a secondary amine may be used as a catalyst. C.

Acid Anthraquinone Dyes. Sandoz Ltd. (1) B.P.630,525 of 3/7/1947: 14/10/1949 (Conv. 5, 12 and 24/7/1946). (2) B.P.630,592 of 17/7/1947: 17/10/1949 (Conv. 26/7/1946 and 12/5/1947). (1) A new series of acid dyes is obtained by con-

densing 1-amino-anthraquinone, containing Cl, Br or SO_3H in position 2, Cl or Br in position 4, and SO_3H in position 5 or 8, with a hydro-aromatic amine (*e.g.* 1-aminocyclohexane or its ring-substituted alkyl derivatives). (2) Anthraquinone derivatives of the type of 1-amino-4-(2′:6′-dimethylanilido)-anthraquinone-2:6-disulphonic acid are halogenated (Br or I). The examples refer to (1) brilliant blue and (2) reddish blue dyeings on wool, silk and nylon. C.

Aminohydroxythiophenol Azo Dyes. Soc. anon. Matières Colorantes et Produits Chimiques Francolor. B.P.630,564 of 30/7/1946: 17/10/1949 (Conv. 24/8/1945). The claim is for a series of dyes made by coupling diazotised aminohydroxythiophenols (*e.g.* 4-amino-3-hydroxythiophenyl) with any of the usual components. A list is given of 39 examples; it refers to dyeings on cotton in the red, blue and purple range, and gives the shades that result from after-coppering. C.

Methacrylic Acid Mixed Di-ester Polymers. E. I. du Pont de Nemours & Co. B.P.630,632 of 21/5/1947: 18/10/1949 (Conv. 21/5/1946). Methacrylic acid is esterified by a mixture of glycols, $HO\cdot(CH_2\cdot CH_2\cdot O)_nH$, of average molecular weight 185 to 270. The co-monomer may be polymerised or used alone or with other plastics in the construction of shoe stiffeners, scratch-resistant finishes, laminates, *etc.* C.

Finishing Machine Feeding Mechanism Electric Switch. Julien Dungler. B.P. 630,717 of 1/4/1947: 19/10/1949 (Conv. 9/4/1946). Mechanism for feeding a web to a finishing machine (*e.g.* a stenter) comprises a wheel which is driven by the moving web and itself drives a rotary mercury switch that governs auxiliary mechanism such as selvedge guides and unwinders. During normal running the mercury is compelled by centrifugal action to complete the circuit across the contacts, but if the machine stops the mercury falls away, the circuit is broken and the auxiliary mechanism is put out of action. C.

Hexagonal-mesh Knitted Fabrics: Finishing with Cellulose Solutions. S. M. Edelstein. B.P.630,846 of 23/3/1945: 24/10/1949 (Conv. 31/3/1944). The claims are for a type of warp knitted fabric in which pairs of elongated loops form the sides of hexagons when stuck together by the deposition of cellulose or a cellulose ether within the yarns. The treatment is applied by padding with the solution (*e.g.* a sodium zincate solution of cellulose or an alkali solution of hydroxyethylcellulose), passing the fabric through an acid regenerating bath, washing, and drying on a stenter. The basic fabric may be of cotton, viscose or acetate rayon, nylon, silk or wool. C.

Fabric Printing Machine. Ezio Rebuffa and Arturo Ciprandi. B.P.630,880 of 21/11/1946: 24/10/1949 (Conv. 8/1/1946). A machine for printing textile fabrics with several colours on one face only comprises a frame on which are mounted gear-driven engraved copper rollers, pressure rollers each urged by springs against its corresponding printing roller, a pan containing water for each pressure roller, a brush partly immersed in the water and rolling on the pressure roller, a scraper taking up the excess of water from the underside of the pressure roller, a second scraper gathering dye from the upper part of the pressure roller which dye is passed through the fabric, a dye pan and feeding roller and scraper for each printing roller, and means for driving the printing rollers. C.

Sodium Tungstate/Cyanamide-formaldehyde Resin: Application in Flameproofing of Cellulosic Materials. American Viscose Corporation (assignees of J. A. Woodruff). B.P.630,890 of 24/12/1946: 24/10/1949 (Conv. 20/2/1946). Cellulosic textiles are impregnated with a solution of sodium tungstate (*e.g.* 5 per cent.; half an hour at 50° C.) and then with an acid solution of a cyanamide-formaldehyde resin (*e.g.* a 2 per cent. solution in acetic acid of the precipitate obtained by the interaction of equi-molar portions of cyanamide and formaldehyde at *pH* 7 and 100° C.). A washable, flame-proof finish is secured without impairing the "handle" of the fabric. C.

Textile Fibres: Treatment. British Rubber Producers' Research Association and C. M. Blow. B.P.638,090 of 31/5/1950. Insecticides, bactericides, moth-proofing agents, waxes for proofing, pigments and dyes which are insoluble or only slightly soluble in water may be applied or fixed to textile fibres. Typical substances are titanium oxide, china clay, carbon black, Hansa Yellow, Monastral Blue, Soluble Yellow DN, Sudan P, DDT and "Mystox L". The method consists in dispersing the substance in an aqueous solution of a cationic

soap so that it possesses a positive charge, and mixing the dispersion with a latex which is positively charged by the addition of a cationic soap. Alternatively the substance may be dispersed directly in the converted rubber dispersion. The mixed dispersion is applied to the fibre in yarn, hank, cheese or fabric form by circulation, padding or printing. W.

Papermaking Felts. The Orr Felt and Blanket Co. B.P.638,275 of 7/6/1950. Papermaking felts are impregnated with a mixture of aqueous rubber latex and urea-formaldehyde condensation product, the mixture being cured on the felt. It is advantageous to add a plasticizer to the mixture, and a curing catalyst may be added. The felt is claimed to have improved wettability, resistance to abrasion and retention of shape, and wet tensile strength which is not materially less than in the dry condition. W.

Wool Goods: Control of Shrinkage. J. M. Preston. B.P.639,576 of 28/6/1950. The shrinkage due to felting of wool goods during washing may be reduced by the addition of thickening agents to the detergent solutions, so that the viscosity of the unaerated solution is greater than 15 centipoises. The water-soluble thickening agent may be sugar, starch, sodium alginate, methyl cellulose, vegetable mucilage such as tragacanth, or a water-soluble linear or branched chain polymer such as polyvinyl alcohol. One example is given together with shrinkage figures. W.

Polymeric Polythiols (for Wool Lubricants). S. L. Scott (to E. I. du Pont de Nemours & Co.). U.S.P.2,495,293 of 24/1/1950 (through *Chem. Abstracts*, 1950, **44**, 3299). Copolymers of cobalt with olefins are converted to polythiol-type polymers by reaction with a mixture of hydrogen and hydrogen sulphide at 75-300° C. at 500-900 atmospheres pressure in the presence of hydrogenation catalysts (cobalt sulphide is preferred in the examples). The products may be oxidised to polysulphides useful as wool lubricants. W.

Carrotting Solution. K. J. Hassan. U.S.P.2,500,678 of 14/3/1950. An aqueous carrotting solution contains 1-15 per cent. of a nitrohydroxy derivative and a low concentration of a volatile acid, preferably nitric acid. It is claimed that such a solution is non-toxic, that it is practically inactive at low temperatures or the temperature of application, that its action increases on heating and can therefore be controlled during the drying operation, and that the reaction on the fur fibres ceases as soon as the fur is dry. W.

5—ANALYSIS, TESTING, GRADING AND DEFECTS

(A)—Fibres

Cellulose Fibres: Small-angle X-Ray Scattering. A. N. J. Heyn. *J. Amer. Chem. Soc.*, 1950, **72**, 2284-2285. The small-angle X-ray scattering by cellulose fibres has been studied on viscose mono-filaments subjected to various degrees of stretch and twist as "models" for comparison with commercial fibres. Patterns have been obtained for various viscose rayons and for cotton, and have been used to investigate the effects of different influences on degree of crystallinity, *e.g.* mercerisation of cotton. Some X-ray diagrams are shown. C—**5A.**

Textiles: Testing; Dynamometric Tracing of Elasticity Curves. Albert Laborde and Maurice Leblanc. *C. r. Acad. Sci. Paris*, 1948, **226**, 552-553 (through *Appld. Mech. Revs.*, 1950, **3**, 143). When the instantaneous modulus of elasticity of a material changes appreciably, the increase in load or deformation can be so sudden that the behaviour of the material is influenced by the different speed in the application of the load or deformation. The authors suggest an experimental arrangement to link linearly deformation speeds and load speeds, minimising in that way any of their excessive increases. C—**5A.**

Textile Fibres: Influence of Molecular Structure on Swelling. S. Simmens and F. Howlett. *J. Textile Institute*, 1950, **41**, T195-T196. The unusual effect of great axial swelling occurring with small lateral swelling, reported by Abbott[1] for nylon, has also been observed with cellulose acetate rayon. No theory is suggested but the influence of a skin round the filaments may be pertinent (Rose[1]). The effect has been noted in 2 per cent. aqueous phenol solution and in water. ([1] *J. Textile Institute*, 1950, **41**, A307.) C—**5A.**

Textile Fibres and Fabrics: *pH* Test. F. Bryant. *Text. J. Australia*, 1949, **24**, 792, 794. A method for the determination of the *pH* of fibres and fabrics is

briefly described. The importance of the dilution ratio (ratio of volume of aqueous extract to weight of fibre) is indicated. The application of *pH* measurements to the washing of finished fabrics is discussed with reference to data on the washing of finished silk. C—**5A.**

Viscose Rayon: Electron Microscopy. Kurt Mühlethaler. *Experientia*, 1950, **6**, 226-228. An electron microscopic study has been made to determine how the fine structure of cellulose fibres is altered by solution and regeneration during the production of viscose rayon. Some electron micrographs are shown and discussed. C—**5A.**

Wood and Pulp Fibres: Structure. ("Von der natürlichen Holzfaser zum künstlichen Cellulosefaden.") Hans Bucher. *S.V.F. Fachorgan*, 1948, **3**, 277-282. A series of photomicrographs are reproduced to show the changes in structure suffered by wood fibres during their conversion into regenerated cellulose fibres. C—**5A.**

Tops Combed in Oil: Estimation of Residual Wool Fat. E. W. Clark and W. L. Thomas. *J. Textile Institute*, 1950, **41**, T236-T240. The rapid method of estimation of residual wool fat on oiled tops based on measurement of refractive index of the extracted matter (*J. Textile Institute*, 1948, **39**, T255-T259) is applicable to Control Class A Oil, Modified Control Class A Oil and Class A (1949) Combing Oil. A general formula for the calculation of results is given. The method is most accurate in the case of Class A (1949) Oil. The method, which is not recommended for other stages in processing, is for the examination of recently combed tops. W—**5A.**

Wool Top: A Simple Quantitative Test for Felting. H. Bogaty, D. Frishman, A. M. Sookne and M. Harris. *Text. Research J.*, 1950, **20**, 270-276. A "top shrinkage test", involving the measurement of the change in length of a sample of top after it has been subjected to wet mechanical action, is described. The method is of use in distinguishing quantitatively between a sliver which has been treated to impart shrink-resistance (*e.g.* with chlorine) and untreated wool, and consists essentially of measuring the lengths of samples sewn into cheesecloth sacks before and after agitating mechanically for ten minutes in 1 per cent. sodium bisulphite. The effects of substituting soap or buffer solutions, and of varying temperatures, weights of sliver, *pH*'s *etc.*, were investigated. Results of experiments using soap solutions initially at 50° C. correlated well with those obtained for shrinkage during laundering of garments made from the tops. W—**5A.**

A Non-destructive Mechanical Test for Animal Fibres. H. M. Burte. *J. Appl. Phys.*, 1950, **21**, 494-499. An investigation has been made of the conditions under which the slope of the force-extension curve in the Hooke's law region may, for animal fibres, be non-destructively measured. A single fibre can be used to investigate a chemical reaction by measuring the change of Hookean slope with time of reaction. The usefulness of this technique is illustrated by its application to the heterogeneous reaction between wool and concentrated neutral salt solutions. The heterogeneous reaction between wool and aqueous glycerine solutions was also studied. Other mechano-chemical methods as well as swelling experiments are described. They give results consistent with those for the Hookean slope technique. A mechanism consistent with the experimental results is presented. W—**5A.**

(B)—YARNS

Viscose Continuous Filament Yarns: Relation Between Fibre and Yarn Flexural Rigidity. P. W. Carlene. *J. Textile Institute*, 1950, **41**, T159-T172. The relationship between fibre and yarn flexural rigidity for the simplest yarn structure has been investigated on commercial and experimental low-twist yarns of continuous-filament viscose. Flexural rigidity is measured by determining the deformation produced in a small, freely-suspended ring of the yarn by a known weight. For a single continuous filament yarn of low twist the yarn flexural rigidity is virtually the simple sum of the rigidities of the component filaments. The relation between filament flexural rigidity (G) and filament denier (D) can be expressed by $G = kD^n$ where k is a constant and n is an integer less than 2. C—**5B.**

Wool/Nylon Staple Mixture Yarns and Cloths: Properties. P. P. Townend and A. B. Marsden-Smedley. *J. Textile Institute*, 1950, **41**, T178-T191. A series of 30s worsted yarns of varied wool/nylon staple fibre content was drawn and

spun on the continental system. Each blend was spun with five twists varying from 10 to 30 turns per inch. The yarns were tested for strength and extension at break in the dry and wet states and cloths made from the yarns were subjected to rubbing tests. Results are presented and discussed. Additions of nylon staple fibre to wool produce continued increase in strength in the dry state. Increasing the amount of twist also causes increase in strength up to a maximum at about 20 t.p.i. Dry strengths are greater than wet strengths and difference between yarns of the same twist content is independent of fibre content. Nylon content contributes more to the wearing power of the cloth than does the twist inserted in spinning. C—**5B.**

Yarn Regularity Traces: Evaluation of Periodicity. ("Évaluation de la Régularité et des Variations Périodiques des Enregistrements.") G. Quintelier and L. Hermanne. *Rayonne*, 1950, **6**, No. 2, 38-41; No. 3, 73-76. Some methods are described for the interpretation of the traces obtained from yarn regularity measurements. The principles and accuracy of the methods are indicated and their use is explained by the calculation of periodicities in actual cases. C—**5B.**

(C)—Fabrics

"Atlas" XW Weather-Ometer. Atlas Electric Devices Co. *Amer. Dyes. Rept.*, 1950, **39**, 377. A new Weather-Ometer, Type XW, is announced. Radiation closely approximating to natural sunlight both in intensity and spectral distribution is provided by a motor-controlled carbon arc. Automatic temperature control is incorporated. C—**5C.**

Alum Soap Waterproofed Garments: Resistance to Wear. ("Effect of Non-durable Aluminum Salt-Wax Emulsions on the Wear Resistance of Textiles.") S. J. Tanenhaus and Mary E. Darby. *Amer. Dyes. Rept.*, 1950, **39**, 349-356. Field service tests have been carried out to evaluate the effectiveness of a non-durable aluminum salt-wax emulsion treatment, applied during laundering, on the wear resistance of various outer garments. The conditions involved severe wear and moderately severe laundering, moderate wear and very severe laundering and moderate wear and laundering, respectively. The conclusion is drawn from the mass of data that the use of the emulsion is not warranted for garments subjected to severe wear or severe laundering, but may be justified for fabrics subjected to moderate wear and laundering. It is also indicated that field serviceability cannot be predicted by any of the tests used, such as breaking load, tear strength, abrasion resistance, and cuprammonium fluidity. C—**5C.**

Black Dyed Nylon: Tendering by Light. O. Newsome. *J. Soc. Dyers & Col.*, 1950, **66**, 277-280. The effect of certain black dyes on the tendering of nylon by exposure to light has been investigated. Several of the dyes decreased the tendering, logwood and Multamine Black B (ICI) being particularly effective. Experiments on the action of chromium compounds suggest that the protective action of logwood is mainly due to the presence of chromium. C—**5C.**

Varnished Electrical Insulation Cloth and Tape: Testing. American Society for Testing Materials. *A.S.T.M. Standards*, 1949, Part 6, pp. 288-299. A revised version of "Tentative Methods of Testing Varnished Cloths and Varnished Cloth Tapes used in Electrical Insulation, A.S.T.M. Designation D.295-49T. The textile tests include a specification of a clamp for tensile tests and the electrical tests include particulars of apparatus for dielectric strength tests. C—**5C.**

(D)—Other Materials

Finishes: Analysis. ("Appreturanalyse.") A. Paul. *S.V.F. Fachorgan*, 1949, **4**, 92-97. A general discussion. The following solvents are used: carbon tetrachloride, alcohol, water, dioxane and dilute hydrochloric acid. C—**5D.**

Plastics: Embrittlement Tests; Analysis of Data. W. L. Gore. *Anal. Chem.*, 1950, **22**, 684-686. A brief account is given of a method of testing flexible plastics for embrittlement from heat or ultra-violet exposure by wrapping a strip of extruded plastic wire around a steel mandrel of approximately the same diameter. Experimental results are given for nylon. Analytical methods of treating the data are outlined. C—**5D.**

Re-wetting Agents: Testing. ("A Proposed Change in the A.A.T.C.C. Test Method for Rewetting Agents.") C. R. Blumenstein. *Amer. Dyes. Rept.*, 1950, **39**, 317-320. In the official method of the American Association of Textile Chemists and Colorists for testing "re-wetting" agents, cotton cloth is impregnated with a solution of the product, dried, stretched over an embroidery hoop,

a drop of water is delivered from a burette and its penetration is timed by a stop-watch. The author has observed that the temperature of the impregnating solution is of great importance and has therefore made a study of the following factors: (1) Temperature of the impregnating bath; (2) Presence of starch and weighters; (3) Different weight and construction of test swatches; (4) Effect of droplet size on different types of test swatches; (5) Ageing and conditioning effects on the test swatches after impregnation. Results are presented and discussed for a cotton twill fabric. It is suggested that the test would be improved by carrying out the impregnation at 70° C. instead of the customary 20° C., thereby coming more into line with actual plant practice. C—**5D.**

7—LAUNDERING AND DRY-CLEANING

Carboxymethyl-cellulose: Application in Detergents. ("La carboxyméthylcellulose et les traitments au mouillé des textiles.") R. Dicker. *Rayonne*, 1950, **6**, No. 2, 73-77; No. 3, 77-80. The preparation, properties, and uses in the textile industry of carboxymethylcellulose (CMC) are outlined. The use of CMC as a "detergent-aid" is discussed and experiments to compare the action of CMC with other agents in this respect are briefly described. Results show that CMC increases the cleansing power of detergents and decreases the amount of dirt redeposition. A further set of tests is described in which the action of CMC (of 4 different viscosities) is compared with that of seven other agents on the detergent action of G-1226 and Igepon T. With only one minor exception CMC shows a superior action to the other aids. Results of experiments to determine the influence of washing-time on the removal of dirt are also reported. With the addition of CMC the time taken to reach equilibrium between the dirt suspended in the washing solution and the dirt remaining on the fabric is appreciably reduced. Further uses of CMC in sizing, dyeing and finishing are briefly described. C—**7.**

Corduroy: Laundering and Dry-cleaning; Comparison of Effects. Doris Saxon, Pauline E. Keeney and Henrietta M. Thompson. *J. Home Econ.*, 1950, **42**, 33-38 (through *Text. Tech. Digest*, 1950, **7**, 409). The effects of dry-cleaning and laundering on light-weight (pinwale) corduroy were compared by surface appearance, dimensional change, colour fastness and flexibility. In the laundering process the corduroys became stiffer and less flexible, but in the dry-cleaning process they became soft and limp. Laundering caused excessive fading and progressive shrinkage. C—**7.**

Detergents: Efficiency Measurement. ("Recents Développments Concernant la Mesure du Pouvoir Détergent.") Gilbert Marroc and J. P. Sisley. *Teintex*, 1950, **15**, 125-139. A fairly comprehensive survey is presented of recent developments (mainly American) in methods for the evaluation of detergency. Methods of soiling and washing the fabric samples are discussed. A new French laboratory washing machine designed by Marroc and known as the "Lavatomic" is briefly described, and some results obtained with it on detergents based on alkylaryl-sulphonates are shown graphically. C—**7.**

"Uvitex" Optical Bleaching Agents: Application. ("Weissfärben von Cellulosefasern mit optischen Aufhellmitteln.") Ed. Weber. *S.V.F. Fachorgan*, 1949, **4**, 98-100. A brief account is given of the use of agents that are substantive for cotton and correct "yellowness" by emitting a blue fluorescence. Specimens are provided of cotton cloth "optically brightened" by means of "Uvitex" RS (Ciba Co.). C—**7.**

Dry-Cleaning Detergents. O. M. Morgan. *Soap*, 1950, **26**, No. 7, 29-31, 133. The advantages are stated of synthetic organic detergents for both dry and wet cleaning. A solvent soluble type is "Naccolene" F, and a water soluble type is "Nacconol" NR. The use of the latter for wool fabrics is claimed to reduce felting and shrinking and to confer resistance to moth attack. W—**7.**

PATENT

Automatic Dry-cleaning Machine. Edouard Levy. B.P.630,614 of 17/10/1946: 18/10/1949 (Conv. 15/2/1941). The 21 claims refer to various aspects of an automatic machine for the dry-cleaning of clothes, *etc.*, wherein solvent is sprayed over the articles for a predetermined period at the end of which dirty solvent is automatically pumped into a recovery plant, after which solvent remaining in the articles is vaporised by heat automatically applied, and the vapours are sucked away through the nozzles previously used for spraying. C.

8—BUILDING AND ENGINEERING

(A)—Construction and Maintenance of Buildings and Plant

"Hydraclone" Centrifugal Separator. W. A. White. *Paper Trade J.*, 1950, 130, No. 24, 76-83. The "Hydraclone" centrifugal separator for the removal of foreign matter from paper pulp is described under (1) principles involved, (2) construction, (3) operation, and (4) advantages. C—**8A.**

Rubber: Bonding to Metals and Textiles. J. M. Buist and W. J. S. Naunton. *Trans. Inst. Rubber Ind.*, 1950, **25**, 378-406. The types of agents used in the metal- and textile-bonding of rubber, and their application and testing are discussed. An illustrated description is given of apparatus for the testing of textile bonding agents, including normal and modified forms of Roclig's apparatus for cord adhesion tests on tyre cords. Results of such fatigue tests are given for three bonding agents. The use of a fatigue test with the normal number of tyre cords per inch is advocated, as this reduces the factor of excessive distortion. C—**8A.**

Weaving Sheds: Automatic Overhead Cleaning. *Textile Industries*, 1950, 114, No. 5, 90-91. An "American Mono Rail" ceiling cleaning fan has been installed in a weaving shed. A series of photographs shows the cleanliness of sections of the ceiling with and without the automatic cleaner. C—**8A.**

Windowless Mills: Construction. Roy Palmer. *Textile Industries*, 1950, 114, No. 5, 87-89. The advantages of windowless textile mills are briefly discussed. Some examples of such mills are shown. C—**8A.**

(D)—Power Transmission

Electrical Condensers (Capacitors): Application in Textile Mills. ("Capacitors Cut Power Bills") *Textile Industries*, 1950, 114, No. 5, 103-105. The power factor in textile mills can be improved by the installation of capacitors, the use, advantages and economics of which are discussed briefly. C—**8D.**

Textile Machinery: Lubrication. ("Neuzeitliche Erkenntnisse über Schmierungsfragen in der Textilindustrie.") H. Kittel. *S.V.F. Fachorgan*, 1948, 3, 169-173. A succinct account is given of the factors to be considered in the selection of lubricants for textile machinery. Measurable characters are viscosity, ignition point, hardening point, and dropping (softening) point for fats. Recommended values are tabulated for bearings at low medium and high speeds. C—**8D.**

(E)—Transport

Warp Beam Handling System. E. H. Doerger. *Textile Industries*, 1950, 114, No. 5, 106-107. A brief illustrated description is given of an automatic monorail beam handling system employed by an American mill. Full beams are automatically transferred from the warper room to the sizing unit and empty beams are returned without attention. C—**8E.**

Wool Bales: Conveyor Handling. See Section 2A. W—**8E.**

(F)—Lighting

Textile Mills: Lighting. ("Modern Principles of Lighting.") F. W. Lancaster. *Textile Industries*, 1949, 113, No. 11, 98-102. The first part of the article deals with some of the modern principles of lighting that can be employed to increase production and generally raise working efficiency. The fundamentals of illumination are briefly described with mention of some points to be considered in the choice of luminaires. Properties of surfaces are discussed with respect to brightness and glare and the choice of suitable background in planning a lighting installation is given mention. The operation of illumination surveys is briefly described. C—**8F.**

(G)—Heating, Ventilation and Humidification

Dust Electricity Analyzer. W. B. Kunkel and J. W. Hansen. *Rev. Sci. Instruments*, 1950, 21, 308-314. An apparatus is described for the simultaneous determination of the size and charge of microscopic particles. The method is based on Hopper and Laby's work (1941) on the determination of the electronic charge, *i.e.* the horizontal deflection of particles settling under gravity is recorded photographically. Details of the procedures are given and the limitations of the method are discussed. C—**8G.**

Dyeing and Finishing Works Ventilation System. ("Entnebelungsanlage im modernen Färberei- und Ausrüstungsbetrieb.") J. Schneider. *S.V.F. Fachorgan*,

1948, **3**, 173-177. An account is given of the principles involved in the design and operation of a system for dispelling clouds of steam from dyeing and finishing plant. A table connects together the temperature of the source of the cloud and the volume of fresh air, the horse power and the steam consumption necessary for its dispersion. C—**8G.**

"Kathabar" Dehumidification Unit. ("Dehumidifier Aids Production.") Surface Combustion Corporation. *Textile Industries*, 1950, **114**, No. 5, 143, 145, 147. A "Kathabar" dehumidification unit has been installed in an American hosiery mill. Improved uniformity of humidity and temperature is reported since its introduction. The unit is briefly described. It employs a moisture absorbent called "Kathene" which is regenerated by steam heat. C—**8G.**

(H)—Water Purification

Water: Purification. ("Wasserreinigung.") (1) and (3-7) M. Kehren. (2) Conrad Wolz. *S.V.F. Fachorgan*, 1947, **2**, 287-291; 1948, **3**, 89-90, 197-204, 227-232, 256-259, 311-317. A useful review is given of modern methods of water purification by (1) and (2) base exchange, (3) lime/soda, and (4) and (5) phosphate methods. Chapter (6) is devoted to the removal of iron and manganese, and (7) to the removal of carbonic acid and silica. C—**8H.**

(I)—Waste Disposal

Textile Finishing Works Effluent: Purification. ("Reinigung von Abwässern der Textilveredlungsindustrie.") (1) and (3) M. Kehren. (2) H. F. Kuisel. *S.V.F. Fachorgan*, 1949, **4**, 25-30, 54-59; 100-102; 144-145. (1) The author reviews the problem of effluent purification under the headings (i) composition of textile effluents—methods of analysis and expression, with a table of typical data, (ii) older systems of settling and filtration, (iii) chemical precipitation, and (iv) the Niers process employing iron turnings, the five stages of which are described in detail, with diagrams and notes on efficiency. (2) Commenting on Kehren's lecture, Kuisel refers to the legal position of effluent disposal in Switzerland. (3) Kehren describes a test of the impurity of a textile effluent, which depends on its reduction of permanganate. C—**8I.**

9—SCIENCE

Bacterial Amylase: Action on Starch; Initial Increase in Viscosity. B. S. Lulla. *Research*, 1950, **3**, 290-291. When starch is treated with amylase from *Bacillus subtilis* the viscosity of the reaction mixture shows an initial increase and then a gradual decrease. The increase in viscosity may be due to the formation of an enzyme-substrate complex before actual enzyme reaction occurs. The phenomenon is not observed when starch is treated with amylase from ptyalin, *Amylum oryzæ*, or pancreas. Reaction velocity curves are given for the bacterial amylase. C—**9.**

Enzymes: Viscometric Activity Determination. E. Hultin. *Svensk Kem. Tidskr.*, 1946, **58**, 281-285 (through *Brit. Abstr.*, 1950, C, 183). The author develops the theory of a method for determining enzyme activity by investigating the change of viscosity of the substrate (*a*) when all linkages are broken with equal ease, and (*b*) when only the outermost linkage at one end of each molecule can be broken. The method cannot be advantageously employed in the second case. C—**9.**

Proteins and Starch: Reversible Enzyme Hydrolysis. S. E. Bresler. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.*, 1948, **12**, 695-710 (through *Chem. Abstr.*, 1950, **44**, 4529[h]). A method of synthesis is based on a conception that the hydrolysis of proteins and starch by enzymes is reversible. To reverse the reaction pressures of 5,000 to 10,000 atmospheres are applied. Under these conditions alanine methyl ester forms a dipeptide and a tripeptide forms a polypeptide as indicated by a van Slyke analysis and a selective adsorption analysis by the method of Zvet. Proteins (gelatin, egg albumin, crystalline serum albumin, hæmoglobin, serum globulin) were first hydrolysed by proteolytic enzymes and resynthesised by the same enzymes. The end products of synthesis have properties very similar to those of the original proteins. The synthesis depends on the amount of hydrolysis and on the nature of the buffer solution because of volume contraction due to electrostriction by different ions. The most favourable buffers are borate and carbonate solutions. Under pressure and in the presence of vegetable or animal

amylase, maltose is transformed into polysaccharides and hydrolysed products of starch are resynthesised to starch-like products as shown by the analysis of aldehyde groups. C—**9.**

Proteolytic Enzymes: Activity Determination. B. F. Chow and Mary Ann Peticolas. *J. Gen. Physiol.*, 1948, **32**, 17-24. A method for the determination of proteolytic activities of enzyme preparations is described that employs casein as substrate. The rate of digestion is proportional to the enzyme concentration. The unit of activity is defined as the amount of enzyme which will digest casein to an extent wherein 50 per cent. of the protein is no longer precipitable by trichloracetic acid. C—**9.**

Chloride Ions: Potentiometric Titration. J. H. Northrop. *J. Gen. Physiol.*, 1948, **31**, 213-215. A convenient method for the determination of small amounts of chloride ions (10^{-4} molar or stronger) by a potentiometric titration is described. The method is accurate to about $\pm 0{\cdot}02$ ml. 10^{-4} silver nitrate. C—**9.**

Hydrosulphites and Related Compounds: Polarographic Analysis. W. Furness. *J. Soc. Dyers & Col.*, 1950, **66**, 270-277. The application of polarography to the analysis of hydrosulphites is discussed. A method is outlined for the determination of hydrosulphite and shown to be more specific than usual chemical methods, but the probable relative error is about 1 per cent. Procedures for the polarographic determination of thiosulphate, sulphide, and trithionate in the presence of sodium hydrosulphite are also described, and the merits of the polarographic and chemical methods are compared. Polarographic methods serve also for the identification of the formaldehyde- and acetaldehyde-sulphoxylates. C—**9.**

Water: Analysis; Application of Flame Spectrophotometry. P. W. West, Patricia Folse and Dean Montgomery. *Anal. Chem.*, 1950, **22**, 667-670. An accurate method for the rapid determination of Na, K and Ca in waters is based on flame spectrophotometry. Interfering effects of diverse ions are obviated by the addition of "radiation buffers". Experimental data are given. C—**9.**

Acetyl Groups: Micro-determination. ("Beitrag zur Mikro-acetylbestimmung.") K. Kainz. *Mikrochimie*, 1950, **35**, 89-93. In acetyl determinations the stage is usually reached when the acetic acid solution has to be boiled in an open flask to remove CO_2 and SO_2. Loss of acetic acid is avoided by hanging a cooling cone in the neck of the flask. C—**9.**

Formaldehyde: Micro-determination with Chromotropic Acid. C. E. Bricker and W. A. Vail. *Anal. Chem.*, 1950, **22**, 720-722. A procedure is given for the micro-determination of formaldehyde with chromotropic acid in the presence of large concentrations of various organic compounds. The interfering compounds are removed by evaporation whereas the formaldehyde is retained by the reagent. Subsequent addition of sulphuric acid develops the true purple colour due to the formaldehyde present. Experimental data are presented. C—**9.**

Organic Compounds: Micro-determination of Carbon and Hydrogen. J. J. Naughton and M. M. Frodyma. *Anal. Chem.*, 1950, **22**, 711-714. An apparatus and method for the determination of C and H in micro-samples of organic compounds are described. A modified Pregl combustion apparatus is used and the water vapour and carbon dioxide are collected in a solid carbon dioxide trap and a liquid air trap, respectively. After pumping out the excess oxygen, the water vapour and carbon dioxide are determined manometrically. Experimental data are given. The accuracy attainable for the determination of C is comparable, and of the H, superior, to the accuracy of the Pregl method. C—**9.**

Organic Matter: Destruction by Acid Ashing. G. R. Sutcliffe. *J. Textile Institute*, 1950, **41**, T196-T197. It is pointed out that organic matter which is difficult to oxidise with nitric acid may react with explosive violence when treated by the method for the destruction of organic material described by Hamlin.[1] Three examples are given, including the destruction of benzylcelluloses and their acetates for the determination of sulphates. ([1] *J. Textile Institute*, 1950, **41**, A29.) C—**9.**

Organic Nitrogen Compounds: Rapid Micro-combustion Analysis. A. F. Colson. *Analyst*, 1950, **75**, 264-268. A modified Fregl-micro-Dumas method for the determination of nitrogen in organic substances is described that reduces the analysis time by at least one half. C—**9.**

Nitric Acid and Sulphur Trioxide Mixtures: Properties. P. M. Heertjes and L. J. Revallier. *Research*, 1950, **3**, 286-288. The melting point curve is given of mixtures of nitric acid and sulphur trioxide, also containing water and nitrous acid. In the region investigated three different crystalline compounds can be distinguished $2SO_3.HNO_3$, $5SO_3.3HNO_3$ and possibly $5SO_3.4HNO_3$. Photographs of the crystals are given. C—**9.**

Amylose and Amylopectin in Whole Structural Starches: Birefringence. Frank Baker and W. J. Whelan. *Nature*, 1950, **166**, 34. Wrinkled pea, smooth pea, normal maize, waxy maize, and tobacco leaf starches have been examined in polarised light. The results show that amylopectin in the raw starch granule possesses a crystallite structure, and that the intensity of birefringence bears no obvious relation to the amylose-amylopectin ratio of the granule. C—**9.**

Azobenzene: Cis-trans Isomerisation in Solution. J. Halpern, G. W. Brady and C. A. Winkler. *Canadian J. Research*, 1950, **28B**, 140-155. Relations for the solvent effect on the rate of a unimolecular non-ionic reaction are derived from current theories of solution and chemical kinetics. The kinetics of the *cis-trans* isomerisation of azobenzene were investigated in 16 pure solvents. A linear relation between the activation energy, E, and the square root of the internal pressure of the solvent, $(P'_i)^{\frac{1}{2}}$, agreed with the theory. Linear relations between $\log A$ and E, and between $\log k$ and $(P'_i)^{\frac{1}{2}}$ were also found, but the results of the reaction in highly polar solvents deviated significantly from these relations. The kinetics of the reaction in mixed solvents indicate that the azobenzene is preferentially surrounded by the component in which it is more soluble. C—**9.**

Organic Compounds: Recrystallisation; Theory and Scope. R. S. Tipson. *Anal. Chem.*, 1950, **22**, 628-636. The general principles of recrystallisation are discussed. Repeated recrystallisation from an added solvent is considered as a means of separation or purification of organic compounds. Methods include simple batchwise, cascade or batchwise countercurrent, and continuous or differential countercurrent treatments. Schemes for batchwise countercurrent fractional recrystallisation are outlined, and the distribution of the components in the phases after each recrystallisation cycle is investigated. C—**9.**

Polyesters and Polyamides: Melting Points, Composition and Molecular Weight. ("Crystallization in High Polymers," V.) R. D. Evans, H. R. Mighton and P. J. Flory. *J. Amer. Chem. Soc.*, 1950, **72**, 2018-2028. The disappearance of crystallinity with increase in temperature has been observed dilatometrically in decamethylene adipate and sebacate, and in a copolyester of the latter with decamethylene isophthalate. The influence of average molecular weight, nature of the end groups, and dilution on the melting temperature of decamethylene adipate has also been observed. Similar observations are reported on two series of copolymerides. The observations are in accordance with a previous theory.[1] ([1]*J. Textile Institute*, 1949, **40**, A384.) C—**9.**

"Vulcollan" Polyurethanes: Production. O. Bayer, E. Müller, S. Petersen, H. F. Piepenbrink and E. Windemuth. *Angew. Chem.*, 1950, **62**, 57-66 (through *Chem. Abstr.*, 1950, **44**, 4709). A comprehensive account is given of synthetic polymers obtained by reaction, in the presence of a small proportion of water, of linear poly-esters from aliphatic dicarboxylic acids and glycols with an excess of special di-isocyanates possessing hindrance structure. The preparation of the poly-esters and polymers, reaction mechanisms, and cross-linking mechanism, and the use of plasticisers and fillers in processing are discussed. Many data, X-ray diagrams, and 65 references to the literature are included in the original. C—**9.**

Proteins: Adsorption of Non-polar Gases. ("Surface Areas of Proteins," II.) S. W. Benson and D. A. Ellis. *J. Amer. Chem. Soc.*, 1950, **72**, 2095-2102. Comparative studies have been made of the adsorption isotherms of a number of non-polar gases at a series of corresponding temperatures on several samples of dry, lyophilised proteins (chiefly egg albumin). Surface areas and net heats of adsorption were obtained by use of the simple Brunauer-Emmet-Teller theory. Results indicate that the adsorption of non-polar gases is independent of the specific protein, being governed principally by the state of subdivision, and that proteins are devoid of fine pore structure. C—**9.**

Proteins: Adsorption of Water. ("Surface Areas of Proteins," III.) S. W. Benson, D. A. Ellis and R. W. Zwanzig. *J. Amer. Chem. Soc.*, 1950, **72**,

2102-2105. Measurements have been made of the effect of the surface area of two different dry, lyophilised proteins on their adsorption of water. Within quite narrow limits, the adsorption is independent of surface area in the range below one-fourth saturation pressure. This implies that water adsorption is qualitatively different from nitrogen adsorption and probably takes place at specific sites on the protein molecule. The presence of even small amounts of air enormously inhibits the rate of water adsorption by proteins. In the absence of air rates of adsorption are immeasurably fast. C—**9.**

Heteropolar Adsorbed Water-repellent Films on Solids: Theory. M. A. Cook and J. C. Nixon. *J. Phys. Coll. Chem.*, 1950, **54**, 445-459. A theoretical discussion is presentetd on the formation of water-repellent films on solids by treatment in aqueous solutions of heteropolar substances. An important industrial use of the phenomenon is in the separation of minerals by flotation where the heteropolar substances are known as "collectors". Various ionic adsorption mechanisms that have been proposed for collectors are examined. Information obtained from zeta-potential measurements and from contact bubble data on heavy metal sulphides is discussed. Long-chain paraffin salt collectors are briefly considered. C—**9.**

Surface-active Colloidal Solutions: Testing by Dye Solubilisation. J. M. Lambert and W. F. Busse. *J. Amer. Oil Chem. Soc.*, 1949, **26**, 289-296 (through *Brit. Abstr.*, 1950, C, 174). A rapid quantitative dye-solubilisation test is proposed as a measure of colloid formation in solutions containing surface active agents. A linear relationship exists between log. (amount of dye solubilised) and log. (concentration of the surface-active agent in solution). These linear "solubisation isotherms" show, relatively, the influence of molecular weight, temperature, and salt concentration on dye solubilisation. Solutions of Aerosol MA, Igepon T, and Nacconol NR were used to determine the effects of temperature, amount and physical form of the dye, type of agitation during solubilisation, and method of removing excess of dye. The solubilisation values obtained after 15 minutes were 80 per cent. or more of the values established after several days by equilibrium methods. Solubilisation characteristics of surface-active agents are affected by the presence of electrolytes. Solubilisation data for various agents, and characteristics of mixtures containing anionic and cationic agents, are presented. C—**9.**

Sodium Stearate: Solubilisation and Co-solvent Effects. R. C. Merrill. *J. Phys. Coll. Chem.*, 1950, **54**, 482-488. Solution temperatures (the points at which turbidity clears) have been obtained for various concentrations of sodium stearate alone and mixed with equal weights of K stearate, Na laurate, and several synthetic detergents. The addition of K stearate, Na laurate, six synthetic anionic and non-ionic detergents, cresol, cyclohexanol, and cyclohexylamine all decreased the solution temperature of Na stearate, but the addition of other organic compounds had variable effects. C—**9.**

Protein Mixtures: Micro-conductometric Analysis. ("An Experimental Technique for Micro-conductometric Analysis of Moving Boundary Systems.") Harry Svensson. *J. Amer. Chem. Soc.*, 1950, **72**, 1974-1978. A method is described for making a complete record of the conductivity throughout moving boundary systems by means of a modified Tiselius apparatus. The boundary system is carefully transported from the electrophoresis apparatus into conductivity cells outside the apparatus. Differentiation of the conductivity diagrams gives patterns very similar to the optical patterns but having certain characteristic differences which are discussed. C—**9.**

Synthetic Membranes: Electrical Properties. W. S. Albrink and R. M. Fuoss. *J. Gen. Physiol.*, 1949, **32**, 453-460. Films of strong polyelectrolytes have been prepared from a mixture of a copolymer of 4-vinylpyridine and styrene, *n*-butyl bromide, and a hydrocarbon plasticiser. In these films large poly-cations are immobilised, but bromide ions (or other small anions) are free to move. The films have been incorporated into a cell with an electrolyte and electrical measurements made with the cell are reported. C—**9.**

Cellulose Ester Solutions: Viscosity Determination by Ball-drop Methods. C. J. Malm, L. B. Genung and G. B. Lapham. *Anal. Chem.*, 1950, **22**, 656-661. Several ball-drop viscometers are described and illustrated. Procedures for the measurement of viscosities and the determination of conversion factors are discussed.

The Faxen equation is particularly useful for the latter purpose. The importance of temperature, concentration and solvent purity is emphasised. C—**9.**

Electro-viscometer. Fisher Scientific Co. *Laboratory*, 1950, **19**, 32-35. An illustrated description is given of the new Fisher Electro-viscometer which measures the viscosity of true Newtonian liquids directly in centipoises. It is a rotational type instrument with a torque-magnetic-electrical system. Viscosity readings in the range 0 to 5,000 centipoises can be made to within 1 per cent. of the true viscosity. C—**9.**

Rubber in Hevea Latex: Molecular Weight Determination. W. J. Van Essen. *Rec. trav. chim.*, 1950, **69**, 753-758. In a viscometric method for the determination of the molecular weight of rubber in freshly tapped latex, the latex is dissolved in a toluene-pyridine mixture and the Staudinger equation is applied. Some results are reported. C—**9.**

Infra-red Microspectroscopy. E. R. Blout, G. R. Bird and D. S. Grey. *J. Optical Soc. America*, 1950, **40**, 304-313. The performance characteristics of an infra-red microspectrometer are discussed and five methods of increasing the ratio of measured absorption to spectrometer noise are mentioned. The design of reflecting-type infra-red microscope objectives having numerical apertures up to 0·5 is described and an account is given of an experimental infra-red microspectrometer that can readily be converted from a micro to a macro instrument in a few minutes. Examples of infra-red spectra of crystals, fibres (including ramie) and tissues of microscopic area are shown. C—**9.**

Colour Phase-contrast Microscopy: Requirements and Applications. C. P. Saylor, A. T. Brice and F. Zernike. *J. Optical Soc. America*, 1950, **40**, 329-334. The requirements and applications of colour phase-contrast microscopy are discussed. In this system a controlled chromatism of the phase plate is sought instead of the customary control of phase difference at one wavelength only. Under the correct conditions, coloured images are obtained and it is possible thereby to examine objects which would be invisible to other means of inspection. The great advantage of the system lies in its clear distinction between effects caused by scattering or general absorption and those caused by small differences of refractive index or thickness. C—**9.**

Photometric Analysis and Photomicrography Apparatus. A. W. Pollister and M. J. Moses. *J. Gen. Physiol.*, 1949, **32**, 567-577. Details are given of the construction and operation of a simplified apparatus which can be used for both photometric analysis and photomicrography. C—**9.**

Colour-blind Vision: Optical Characteristics. Selig Hecht and Yun Hsia. *J. Gen. Physiol.*, 1947, **31**, 141-152. Measurements have been made of the dark-adapted foveal threshold of normal and colour-blind persons in five parts of the spectrum, a 1° circular test field being used. Compared with normals, protanopes (red-blinds) and deuteranopes (green-blinds) show an elevation of the threshold (but of different degrees) and these elevations correspond to luminosity losses in the spectrum. Such losses support the idea that colour-blindness corresponds to the loss of one of the three receptor systems usually postulated to account for normal colour vision. However, other conflicting evidence is reported and a fresh explanation of colour-blindness is called for to reconcile these facts. C—**9.**

Visual Acuity and Brightness Discrimination. C. D. Hendley. *J. Gen. Physiol.*, 1948, **31**, 433-457. Experimental work on the relationship of visual acuity to size, contrast and brightness is described. Visual acuity depends on the brightness contrast between test object and background; and conversely, brightness discrimination on the target size. Both functions vary with the brightness of the background. The relation between contrast and the frequency of seeing the test object against the background has also been investigated. C—**9.**

Electrical Displacement Meter. Alan Douglas. *Electronic Engng.*, 1950, **22**, 215-219. An electromagnetic gauge for the measurement of very small physical displacements is described. The theory of the instrument is dealt with and circuit diagrams are given. C—**9.**

Polymer Chains: Markoff Chains and Excluded Volume Effect. E. W. Montroll. *J. Chem. Phys.*, 1950, **18**, 734-743. A mathematical method based on the theory of Markoff probability chains is used to eliminate short-range exclude-

volume effects in polymer chains formed on space lattices. Those aspects of the theory of Markoff chains which are important in this problem are briefly reviewed. A detailed analysis of a polymer chain on a square lattice is given. C—**9.**

Soap Micelles: X-Ray Patterns. ("A Test of the Interpretation of X-Ray Patterns of Micelles.") E. W. Hughes. *Nature*, 1950, **165**, 1017. It is shown that conditions inside soap solutions differ from those of Davies and Phillipoff's X-ray diffraction experiments[1] with multi-layers of lead stearate on chrome-plated brass, thus invalidating their conclusions regarding the micellar structure and X-ray patterns of soap solutions, particularly their contention that Bragg spacings in solutions of detergents should be accepted at face value. Bragg spacings corresponding to maxima in soap solution patterns usually have no direct significance as actual distances or constant ratios to distance in or between micelles. ([1] *J. Textile Institute*, 1950, **41**, A167.) C—**9.**

Styrene: Polymerisation; Effect of Alternating Electrical Fields. W. A. Bryce, C. A. Genge and C. A. Winkler. *Canadian J. Research*, 1950, **28B**, 117-131. Equipment for studying the effects of alternating fields on chemical reactions is described with reference to the catalysed polymerisation of liquid styrene. The following variables were considered: field strength; field frequency; reaction temperature; and catalyst concentration. The rate of polymerisation was reduced by the application of the fields, the inhibition increasing approximately as the square of the voltage. The fields had a greater inhibiting effect on the oxygen-catalysed than on the benzoyl peroxide-catalysed reaction. Varying the frequency had no effect on the amount of inhibition caused by the field. At all temperatures, catalyst concentrations, voltages, and frequencies, the fields had no significant effect on the viscosity-average molecular weight of the polymer. C—**9.**

Statistical Data: Sequential Analysis. ("Introduction à l'analyse sequentielle.") Léon Goossens. *Rayonne*, 1949, **5**, No. 12, 84-89; 1950, **6**, No. 1, 84-93; No. 2, 89-98. The problem of the acceptance or rejection of a lot according to the number of faulty elements contained in a simple, random sample is considered in detail. Different methods of calculating the probability of acceptance are described and the interpretation of the characteristics by means of suitable tables is discussed. The main factors used in the systematic classification of characteristic curves are considered, including "acceptable quality level", "indifference quality level", "unacceptable quality level", "average outgoing quality level", sample size, *etc.* Three new characteristics are introduced, namely, discriminatory power, number of inspections necessary for acceptance, and characteristic corresponding to an ideally controlled production. A repetitive sample inspection plan is considered, and the relationship between the inspection characteristic and the control characteristic is discussed. C—**9.**

Polystyrene: Creep/Time Relations under Tension, Bending and Torsion. J. Mariss and G. Cuff. *Proc. Amer. Soc. Testing Materials*, 1949, **49**, 1158-1174. Creep/time relations have been determined for polystyrene subjected to tension, bending, and torsion. The influence of the magnitude of the stress and time upon the creep deformations was determined for each of the type of stress. Control tests and stress/strain or load/deformation relations were obtained for simple tension, compression, simple bending, pure bending, and torsion. A number of methods of interpretation of the creep test results were applied for the purpose of obtaining a suitable stress/creep/time empirical relation. It was found that a log./log. relation between the 1000-hour creep rate and stress approximately represents the data for the three types of stress considered. Theoretical values of the creep rates for bending and torsion, based on the tension log creep rate/log stress relation, agreed approximately with the actual creep rates obtained in the bending and torsion tests. C—**9.**

Porous Media: Fluid Flow through —. ("Experimental Data on the Viscous Force Exerted by a Flowing Fluid on a Dense Swarm of Particles.") H. Verschoor. *Appl. Sci. Res.*, 1950, **A2**, 155-161. Experimental evidence is presented to support Brinkman's modification[1] of Darcy's law for fluid flow through porous media. The results of the measurements performed on the flow of water through beds of sand and of toluene through glass powder are in close accordance with the prediction from theory. ([1]See *J. Textile Institute*, 1949, **40**, A426.)

Cylindrical Bodies with Periodic Axial Structure: X-ray Diffraction. R. S. Bear and O. E. A. Bolduan. *Acta Cryst.*, 1950, **3**, 236-241. The diffractions expected of representative cylindrical bodies with periodic axial density variations, but lacking regular order over cross sections, are calculated. Collagen fibrils are of interest in this connection. Three models are considered: (1) smooth cylinder, radius is everywhere constant; (2) corrugated cylinder, radius is a periodic function of position along the cylinder with same period as axial density variations; (3) compound cylinder, composed of thin, parallel smooth cylinders displaced axially from perfect transverse matching of their identical axial density fluctuations. C—**9.**

Rate of Acid Sorption by Wool Fibers. J. Lindberg. *Text. Research J.*, 1950, **20**, 381-384. A method for measuring the diffusion rate of mineral acids has been developed. It consists mainly in dispersing short fibres in acid solutions and measuring the decrease in the concentration by means of a conductivity cell. The diffusion constant is obtained by solving the diffusion equation for the conditions specified. The experimental curves agree with the theoretical ones. In this way the importance of the epicuticle for the diffusion phenomena in wool fibres has been proved. The presence of an undamaged epicuticle gives a low diffusion constant. The necessity of removing all foreign matter which may interfere with the diffusion is stressed. W—**9.**

Animal Hairs: Existence of an Intermediate Membrane. ("Zur Existenz der Zwischenmembran in tierischen Haaren.") H. Zahn. *Textilber.*, 1950, **31**, 36-38. Recent work on the structure of animal hairs is described. The chemical composition of components of wool treated with phenol which are insoluble in pancreatin is discussed, and methods of isolation of the intermediate membrane from human hair by the action of caustic soda solution at various temperatures are described. The results of the work are considered to provide evidence for the existence of the intermediate membrane between the scale layer and the spindle cell layer. W—**9.**

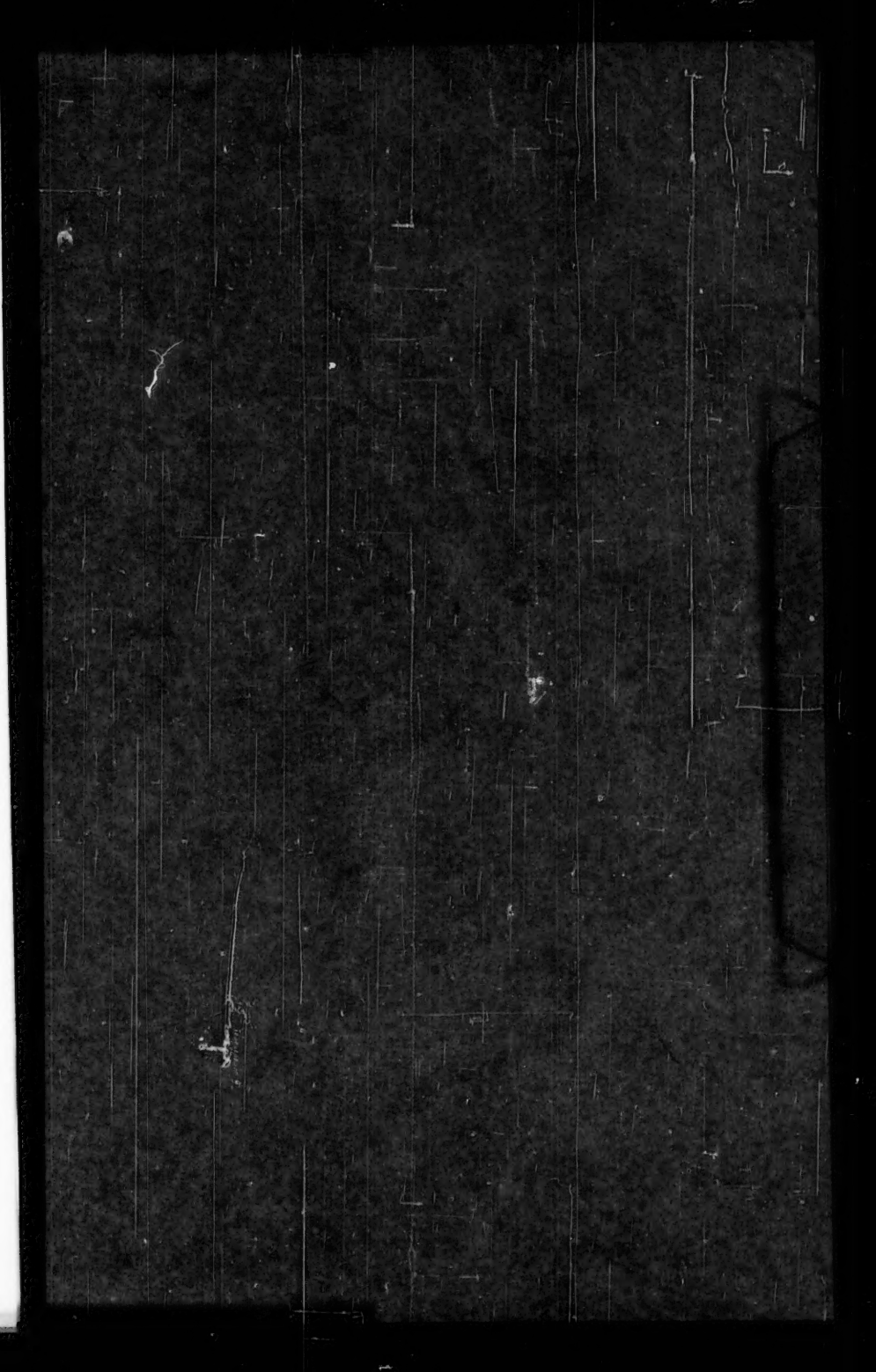
Animal Hairs: Intermediate Membrane in —. ("Über die Zwischenmembran in tierischen Haaren.") H. Zahn and H. Haselmann. *Textilber.*, 1950, **31**, 225-230. Smooth bands have been isolated from under the scale layer of black horsehair; because of their double refraction and their fibrillar structure these bands must be regarded as the covering zone of the spindle cell layer. Intermediate membranes obtained by heating human hair in normal caustic soda solution also proved to be associations of the outer cells of the cortex. The components of wool, which were insoluble in 2-normal caustic soda solution at 13° C., consisted of scale covering and intermediate membrane. Nitrated horsehair softened by the action of hydrochloric acid decomposed into bands which consisted of scale cover and membrane. The nomenclature of the component cells and layers of the fibre is discussed. The article is illustrated by photomicrographs. W—**9.**

Sheep: Some Observations on the Dimensions of Follicles and of other Structures in the Skin. M. Burns and H. Clarkson. *J. Agric. Sci.*, 1949, **39**, 315-334. A method has been developed for measuring the volume of follicles and other structures in the skin, with an error of less than 1 per cent. Projected images of horizontal sections of a follicle bundle were traced throughout its depth in the skin, and the areas of structures shown on each tracing measured by means of a planimeter. The volume was calculated from the sum of all the areas multiplied by the thickness of the sections. A method was also evolved of measuring the curled length of a follicle. The difference between the length and depth of the majority of the follicles was less than 10 per cent. Dimensional relations within a follicle bundle and within a follicle are discussed. A staining reaction shows that the order in which keratinization commences and becomes complete is the same in almost all follicles of a ram and ewe examined, but is different in a lamb. Keratinization commences and finishes at a relatively greater depth in deep than in shallow follicles. No effect of papilla shape on the fibre produced could be discerned, nor was there any indication that particular papilla shapes were peculiar to certain ages or to individual sheep. Medullation in primary follicles was independent of that in secondary follicles; it is not dependent on follicle size. W—**9.**

10—ECONOMICS

Schoolgirls: Choosing a Job. C. E. Howell. *Textile Weekly*, 1950, **46**, 34-36. The responses of some 200 girls from Secondary Modern schools in south-east Lancashire to a questionnaire on choosing a job are analysed. "Interesting work" heads the list of reasons for choosing a particular job, followed by "mother's wish" and "Pleasant place to work in". At the bottom of the list is "Head teacher's advice" The conclusion is drawn that in order to attract such girls to the cotton industry more might be done to disseminate information that catches the interest, and there is a need for convincing parents and teachers that the industry offers opportunities for a career. **C—10.**

Textile Workers: Aptitude Testing. ("L'appropriation de l'ouvrier textile.") J. Eynikel. *Rayonne*, 1950, **6**, No. 3, 120-122. A series of tests to determine the aptitudes of textile workers is briefly described. They include tests for visual acuity, attention or concentration, dexterity, quickness, response of "hand to eye", strength and resistance to fatigue, perspiration from the hands during tests, and patience. The use and interpretation of these tests are indicated. **C—10.**

Textile Research and Developments During 1949. Textile Research Institute and The Textile Foundation. *Textile Research J.*, 1950, **20**, 317-360. A comprehensive review is given of research and development work in the field of textiles, carried out during 1949. A bibliography of over 800 references is arranged to conform to the subject headings in the text. **C—10.**

Belgian Linen: Misdescription. *Linen Trade Circ.*, 1949, **35**, Dec. 24, 25. It is reported that the Belgian linen industry has set up a Committee which can take action against misuse of the term "linen". In a Royal Decree of 1936, certain terms may be used only for an all flax cloth, or a cloth containing less than 10 per cent. other fibres; others may be used only when the material contains a minimum of 50 per cent. flax. **L—10.**